Avid® AirSpeed™

Installation and User's Guide

Version 1.1

make manage move | media™ Avid®

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Using This Guide

Congratulations on your purchase of an Avid® AirSpeed™ multichannel media server. You can use your AirSpeed to capture and output broadcast-quality media.

Symbols and Conventions

Avid documentation uses the following symbols and conventions:

Symbol or Convention	Meaning or Action
	A note provides important related information, reminders, recommendations, and strong suggestions.
	A caution means that a specific action you take could cause harm to your computer or cause you to lose data.
	A warning describes an action that could cause you physical harm. Follow the guidelines in this document or on the unit itself when handling electrical equipment.
>	This symbol indicates tab commands (and subcommands) in the order you select them. For example, File > Import means to open the File tab and then select the Import command.
▶	This symbol indicates a single-step procedure. Multiple arrows in a list indicate that you perform one of the actions listed.
Italic font	Italic font is used to emphasize certain words and to indicate variables.
`Courier Bold font`	Courier Bold font identifies text that you type.
Ctrl+*key* or *mouse action*	Press and hold the first key while you press the last key or perform the mouse action. For example, Ctrl+drag.

If You Need Help

If you are having trouble using AirSpeed:

1. Retry the action, carefully following the instructions given for that task in this guide. It is especially important to check each step of your workflow.
2. Check for the latest information that might have become available *after* the documentation was published in one of two locations:
   - If release notes are available, they ship with your application.
   - If ReadMe files are available, they are supplied in your Avid application folder. ReadMe files are also available from Help.

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3. Check the documentation that came with your Avid application or your hardware for maintenance or hardware-related issues.
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Chapter 1
AirSpeed Overview

This chapter provides background information about the AirSpeed media server. The following topics are discussed:

- Design
- Hardware and Software Requirements
- Software Overview
- Front and Rear Panels

AirSpeed is a digital recorder or a playback device designed for the Avid Unity MediaNetwork environment. AirSpeed allows you to capture incoming media directly into storage allocation groups (called workspaces) or playout media to air. Previously, Avid editing systems were used to capture the media, preventing the Avid editor from editing. Now media can be captured directly into Avid Unity workspaces unattended, freeing the Avid editing system for editing. Use the Avid editing system to edit the captured media into sequences and send the sequence back to the AirSpeed for playout. Group up to five AirSpeeds together to form a Studio.

Design

AirSpeed is designed for ease of use. Once the AirSpeed is configured, this network media server captures one stream of video and up to eight channels of audio to a preselected Avid Unity workspace. The video format you select in the AirSpeed should be compatible with the editing systems at your site. The captured material is made available to Avid editing systems that use OMF® compliant media files.

The AirSpeed is also a two channel playout server. Select the AirSpeed's host name in the Send To Playback list on the Avid editing system and you can transfer a sequence to the AirSpeed server. Then use AirSpeed CountDown™ to manage the playout of the sequence. You can group two to five AirSpeed servers as a Studio by following an AirSpeed host naming method. Send a sequence to the Studio and all the AirSpeeds in that Studio have the capability to playout the sequence. For information on the Studio concept and configuration, see Chapter 7.

You can set up and configure the AirSpeed using the user interface (UI) displayed on the built-in front panel monitor as well as remote applications, such as Avid Pilot and Avid FlightPlan.

Media previously captured plays back in the UI monitor on the front of the AirSpeed as well as out the connections on the back of the AirSpeed. You can play back two streams of video at the same time. Use the UI playback buttons to select the video stream you want to view. For more information, see "UI and Playback Monitor" on page 26.

AirSpeed operates seamlessly on the Avid Unity MediaNetwork. The Record and Stop buttons, located on the front panel of the AirSpeed, allow you to initiate and terminate the capture of material. In addition to these front panel buttons, you can control and capture material using Avid Media Browse™ or CaptureManager™ through a network interface. You can control the AirSpeed through serial or Ethernet connections.

If the Avid Unity MediaNetwork becomes unavailable, AirSpeed captures media to the internal drives until the Avid Unity MediaNetwork becomes available or the internal drives are full.

Hardware and Software Requirements

Your AirSpeed system requires specific Avid components and software versions, see the *AirSpeed Release Notes* included with your release for the qualified versions. The following Avid products are required:

- Avid Unity MediaNetwork and Avid Unity LANshare EX
- Avid Unity MediaManager
- Avid NewsCutter®, Avid NewsCutter XP, or other Avid editing system.

- Avid PortServer Pro II based on the Intel® Server Chassis SR2200 platform or newer (the Intel ISP2150 Internet Server platform is not supported)

The AirSpeed connects to a Avid Unity PortServer Pro through a network switch.

- A network Domain Name System (DNS) server (recommended)

If your Avid Unity environment does not have a network DNS server, instructions for creating one can be found on the Avid Knowledge Base. See "Accessing the Knowledge Base" on page 97.

Optional Avid applications include:

- Avid Unity TransferManager
- Avid Media Browse
- Avid ControlAir
- Avid AirSpeed FlightPlan
- Avid AirSpeed Pilot
- Avid AirSpeed CountDown

Software Installation

The AirSpeed software resides on the system's disk drives. The software comes preinstalled. Future releases and updates require you to load the software on your Avid Unity MediaManager server where the AirSpeed can access the new or old versions. AirSpeed software is installed using the Setup > Software tab in the AirSpeed UI. For more information, see "Software Tab" on page 91.

Synchronization

When AirSpeed is capturing media, the sync is locked to the input signal. During playback, the outgoing media is locked to the house reference signal provided on the Reference In connector on the rear of the AirSpeed. For information on video reference output, see "System Config Tab" on page 78.

Ethernet Connections

AirSpeed systems have an Ethernet connection used to control, configure, capture media to, or playout from, the Avid Unity MediaNetwork. For more information see “Control Connectors” on page 33.

Each AirSpeed needs its own IP address. The AirSpeed system operates as a PortServer Pro client to the Avid Unity storage area network (SAN).

AirSpeed establishes a connection with MediaManager, via an Ethernet connection, to check in project information and other metadata associated with the captured material. This process occurs at the start of capturing, during chunking, and when capture is terminated.

Networking

AirSpeed connects to the Avid Unity network with a unique name and IP address. Avid Unity MediaNetwork associates each AirSpeed by using either the AirSpeed name or the IP address. AirSpeed operates as an Avid PortServer Pro client.

PortServer Pro Connection

The AirSpeed software contains Avid Unity client code that provides the appropriate file and directory access to the storage area network. Avid has qualified AirSpeed support on the PortServer Pro based on the SR2200 and newer platforms.

The PortServer Pro based on the Intel ISP2150 Internet Server platform is not qualified to support AirSpeed.

AirSpeed uses an Ethernet client license in the Avid Unity workgroup environment and appears in the PortServer Pro Status Viewer. You do not have to purchase an additional license for the AirSpeed seat.

MediaManager Client

AirSpeed sends metadata to the MediaManager server during check-ins and when capture is terminated. The MediaManager client generates and stores an OMF2 file with clip media files on the Avid Unity MediaNetwork.

Network Time Protocol

AirSpeed supports the use of a Network Time Protocol (NTP) server. By entering the IP address of your NTP server on the network, the AirSpeed synchronizes to the network time. Ultimately, the date and time in AirSpeed operating system is corrected to match the NTP server. For information on configuring the NTP server, see “Network Tab” on page 77.

Internal Storage

The AirSpeed is equipped with four internal SCSI drives. These drives are used as a buffer for incoming media and for playing back required media. The AirSpeed is equipped with four 36 GB drives. These internal drives are in a 4-way RAID 0 stripe.

Serial Control

For flexibility, the AirSpeed supports more than one control mechanism. The AirSpeed deck control operations and Video Disk Control Protocol (VDCP). These operations include capturing, playing, pausing, shuttling, and navigating to timecode. The serial control of the AirSpeed is through two standard 9-pin RS-422 interface connectors on the rear of the AirSpeed. For information on configuring the serial remote ports, see “Channels Tab” on page 84.

User Interface

The front panel of the AirSpeed unit provides a monitor that has the option to display the AirSpeed UI. The UI provides windows for capturing media, playing media, and configuring the AirSpeed. The AirSpeed UI is explained in Chapter 4. Also included on the front are buttons for capturing and marking media, indicators and controls for the audio, and a headphone jack. See “Front Panel Layout” on page 24.

Portions of the front panel are designed to resemble a standard deck control interface with the appropriate buttons for capturing, playing, pausing, and shuttling. Additional controls are provided for nonlinear deck navigation.

The AirSpeed UI provides you with the flexibility to tailor capture and playout settings. These settings include network and workgroup settings, audio and video formats, and interface operations.

You have the ability to instantly capture (crash record) to a predetermined workspace on the Avid Unity MediaNetwork by pressing the Record button.

Software Overview

The AirSpeed system software supports all networking and operational requirements of the AirSpeed.

Digital Input and Output Selection

The AirSpeed can capture and play back video from serial digital interface (SDI) connectors on the rear of the AirSpeed. Digital audio input and output connectors are also on the rear panel. Digital audio is available through the following AES/EBU BNC connections:

When no video signal is present, black is recorded.

- SDI Inputs and outputs using 525 lines (NTSC) or 625 lines (PAL) of video with optional embedded 48 KHz 20-bit audio.
- Eight AES inputs (4 AES/EBU pairs), with 16 or 24-bit sampling at 48 KHz (Inputs 1/2, 3/4, 5/6, and 7/8)
- Eight AES outputs (4 AES/EBU pairs), with 16 or 24-bit sampling at 48 KHz (Outputs 1/2, 3/4, 5/6, and 7/8)

Analog Output Selection

Analog video output is available through composite and component (Y, Pr/R, Pb/B) connectors. Eight analog audio outputs are available through an Avid supplied cable that connects to a 25-pin connector on the AirSpeed. The eight XLR connectors on the other end of the cable connect to the analog inputs of your audio device (see “Audio Cable” on page 51).

Supported Media Formats

The media files created by AirSpeed and stored on Avid Unity workspaces are OMF Version 1.0 compliant. The AirSpeed supports the Avid media formats listed in "Supported Avid Media Formats" on page 19.

Supported Avid Media Formats

Media File Type	Supported Formats
Video (NTSC and PAL)	DV25 NTSC supports DVCPRO (DV25 411) PAL supports DVCPRO (DV25 411 and DV25 420) DV50 IMX 50 — MPEG i-frame-only compression
Audio	WAVE — 48 kHz

Capture Modes

AirSpeed supports the two capture modes described in the following table.

Capture Modes

Mode	Description
Normal (with chunking)	Captures real-time events or media. This video and audio mode captures the input signal and stores the media on an Avid Unity workspace. You can start a capture using the front panel operational controls or the Avid Pilot application. The normal mode chunks the media so that portions are available to edit while you are still capturing it. For more information, see "Capturing with Chunking (Shared Volume Segmentation)" on page 20.
RetroLoop™	Records material continuously in a loop, using on a predetermined amount of storage space. Retroloop was designed to provide the ability to capture material for a predetermined, user-selectable amount of time *before* an unknown event occurs. Once the event happens, the system can be set to revert to normal Capture mode and capture continues until capturing is stopped. The end result is a clip that contains material before and after the event. For information in entering Retroloop mode, see "Retroloop Mode" on page 109. *Retroloop can only be initiated using the AirSpeed front panel.*

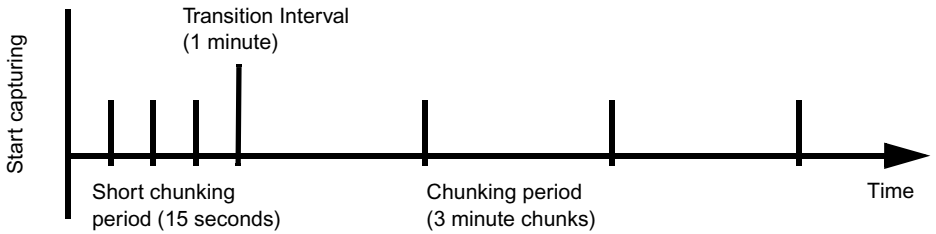
Capturing with Chunking (Shared Volume Segmentation)

When chunking, the media is sent in segments to a workspace, allowing workgroup users access to media that is currently being captured. Avid editing systems refer to chunking as Shared Volume Segmentation. Chunking is supported for both audio and video media. For more information, see the *Avid Unity MediaManager Administrator's and User's Guide*.

The segment time is user programmable, providing media shortly after capturing has started. At each chunk interval, more media is available, adding to your previous media. The AirSpeed supports chunking by creating clips of the material at a predetermined duration times and by periodically checking in captured material through the Avid Unity MediaManager client interface.

AirSpeed captures short chunks of media up to a transition time, then from the transition time forward, media is captured at your selected Chunking Period. For example, if the Chunking Period is set to 3 minutes, Transition Interval to 1 minute and Short Chunking period to 15 seconds. Media checks in at 15, 30, 45, 60, 240, 420, etc. See the following illustration.

AirSpeed Chunking Model



Chunking values are set in the Setup > Channel tab of the AirSpeed UI. For chunking time constraints, see "Channels Tab" on page 84.

Data Files

Minimum and Maximum Chunking for DV 25

Chunking Setting	Minimum	Maximum
Chunking Period	3 minutes	9 minutes
Transition Interval	1 minute	3 minutes
Short Chunking Period	15 seconds	3 minute

The AirSpeed creates media and metadata files in the OMFI MediaFiles directories on the target workspaces. If the system's unique OMFI MediaFiles directory is not present on the selected network media drive, the AirSpeed creates one. The AirSpeed also will create a subdirectory under the OMFI MediaFiles directory.

The AirSpeed does not perform bin management operations. Bin entries for AirSpeed media are generated by the MediaManager server as the material is checked in.

Workspaces must already be created in the Avid Unity MediaNetwork in order to select the workspace name during the AirSpeed setup (see "Destination Template" on page 88). AirSpeed will create new projects, bins, and catalogs if the names in the configuration do not already exist.

Media Destination Selection

The AirSpeed remembers the last storage destination set. Whether you initiate the capture by manually pressing the front panel Capture button or by remotely controlling the capturing, media is stored to the last selected Avid Unity network workspace. This feature allows you to crash record using the front panel Record button for quick captures.

Captured media is first stored on the internal drives of the AirSpeed and then copied to the selected Avid Unity workspace. As the internal drives approach their maximum capacity, AirSpeed automatically deletes the internal media that has been saved to a workspace. The Auto Delete setting in the Setup > System Config tab controls when to delete the media and how much media to delete. For more information on setting the Auto Delete, see "System Config Tab" on page 78. When the workspace and the internal drives are full, AirSpeed will stop capturing.

Playback

You can play back media previously captured by the AirSpeed. Two video streams of media can be played back at the same time. Pressing the Channel Select buttons allows you to switch between the two play channels. Navigation and playback of specific clips is initiated by the AirSpeed UI and controlled using the Operational Control buttons. Load a clip in the Play button of the AirSpeed UI and press the Play button on the front of the AirSpeed to view the clip in the UI and playback monitor.

Playout

Once you have edited your media, use the AirSpeed as a playout server. Media sent to the AirSpeed for playout from an Avid Unity MediaNetwork client can be controlled using the Avid AirSpeed CountDown application. For information on controlling clips on the AirSpeed, see *Avid AirSpeed CountDown User's Guide*.

Automatic delete is only available when capturing. When playing out media, you must manually delete the media when you are finished with it. Delete the media using the Avid FlightPlan or Avid AirSpeed CountDown applications.

Before you can send your sequence to the AirSpeed from an Avid editing system, you must add the AirSpeed to your Send To Playback list in the Avid editing application. Adding an AirSpeed to the Send to Playback list is done by adding the AirSpeed Host Name to the TMClient.ini tab of the Transfer settings.

Sending a sequence from an Avid editing system to playout is summarized as follows:

1. Add the AirSpeed Host Name to the TMClient.ini tab in the Transfer settings. This process is described in "Adding the Studio to Your WorkGroup" on page 119.
2. Connect to the AirSpeed by selecting Transfer > Reconnect to Server. This process is described in "Connect to Playout Server or Studio" on page 120

3. Send a sequence to playout by doing one of the following:
   - Right-click on the selected sequence and select Send To Playback > *AirSpeedname*.
   - Highlighted the sequence in your bin, select Transfer > Send To Playback > *AirSpeedname*.
4. (Optional) Monitor the transfer status by selecting Transfer > Status Window (see "Transfer Status Window" on page 123).

Do not delete the Sequence or source media off of the Avid Unity workspace until you are sure the transfers to the AirSpeed or Studio are complete.

Studio Playout

An Avid AirSpeed Studio consist of two to five AirSpeeds grouped together using the network host names of the AirSpeed. When an Avid editing system sends a sequence to the Studio, any AirSpeed members of the Studio can playout the sequence. If one or more AirSpeeds in the Studio are offline, any other AirSpeed still online in the Studio performs the playout.

For detailed information on the Studio concept, configuration, and using the Studio, see Chapter 7.

Front and Rear Panels

AirSpeed uses industry-standard video and audio, input and output connections in addition to network and control connections. The AirSpeed is designed for a 19-inch (483-mm) rack occupying three rack units (3U). For information on installing the AirSpeed into a rack, see "Installing AirSpeed in a Rack" on page 41.

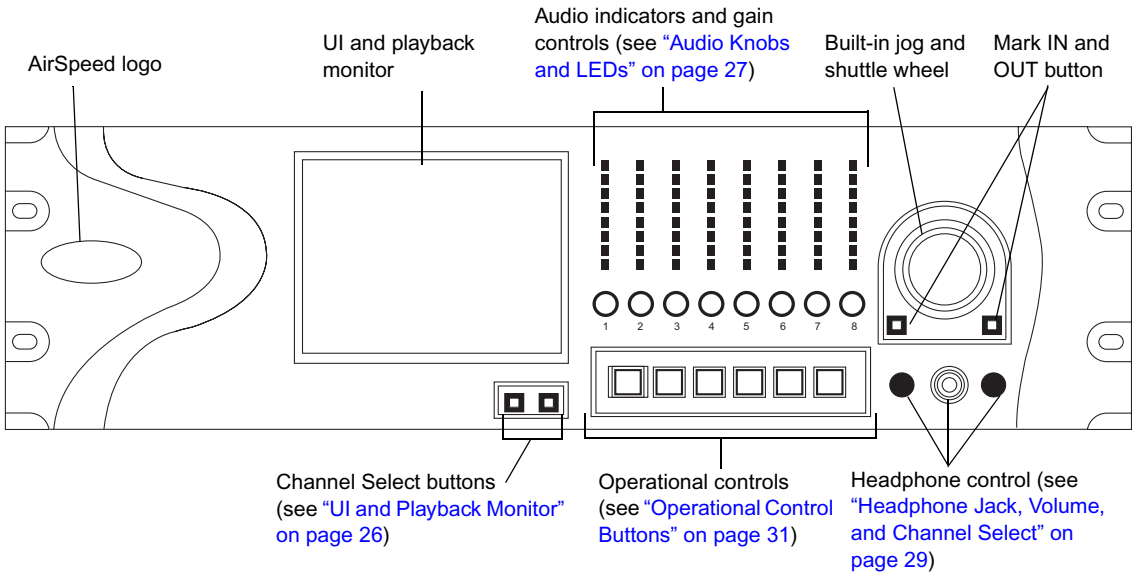
Front Panel Controls

You can manually configure your AirSpeed by using the UI and playback monitor. Chapter 4 lists the tab structure of the AirSpeed UI as seen in the UI playback monitor.

Avid recommends using the Virtual Network Computing (VNC) application to configure the AirSpeed when access to the AirSpeed is not available or when a keyboard and mouse are not attached. For more information see, "Virtual Network Computing" on page 129.

The following figure shows the controls on the front of the AirSpeed.

Front Panel Layout


AirSpeed logo
UI and playback monitor
Audio indicators and gain controls (see "Audio Knobs and LEDs" on page 27)
Built-in jog and shuttle wheel
Mark IN and OUT button
1 2 3 4 5 6 7 8
Channel Select buttons (see "UI and Playback Monitor" on page 26)
Operational controls (see "Operational Control Buttons" on page 31)
Headphone control (see "Headphone Jack, Volume, and Channel Select" on page 29)

The following table describes the front panel controls.

Front Panel Controls

Control	Description
UI and playback monitor	The UI and playback monitor displays the UI or video during playback and captures. Configure or change settings in the UI using a keyboard and mouse connected to the PS/2 port.
Channel Select buttons	The channel select buttons are used to switch between the two play channels. Channel one is the record channel as well as play channel one. Both channel one and channel two can be playing video at the same time. Switch between the two channels by pushing either Channel Select button. For more information on the buttons, see "UI and Playback Monitor" on page 26
Manual audio gain controls	The audio gain controls allow you to adjust the gain of the audio outputs. Audio levels are displayed on the front panel LEDs. For more information on the knobs and LEDs, see "Audio Knobs and LEDs" on page 27.
Operational controls	Six buttons to the lower right of the UI and playback monitor match the buttons on a videotape recorder (VTR). For more information on the buttons, see "Operational Control Buttons" on page 31.
Mark IN and OUT	Mark IN and OUT sets on-the-fly by pressing the IN or OUT buttons while capturing. When you press IN again, the first mark IN point moves. Pressing OUT again moves the mark OUT point. You cannot mark more than one mark IN and one mark OUT point per clip. *You can have just an IN point without having an OUT point.*
Headphone jack volume control and channel select.	Plug a headphone set into the headphone jack and use the knob above the jack to adjust the volume. The headphone jack is a stereo output. *You can only hear two audio channels at a time through the headphone jack. Select the audio channels you want to hear using the audio channel select knob (see "Audio Knobs and LEDs" on page 27.*

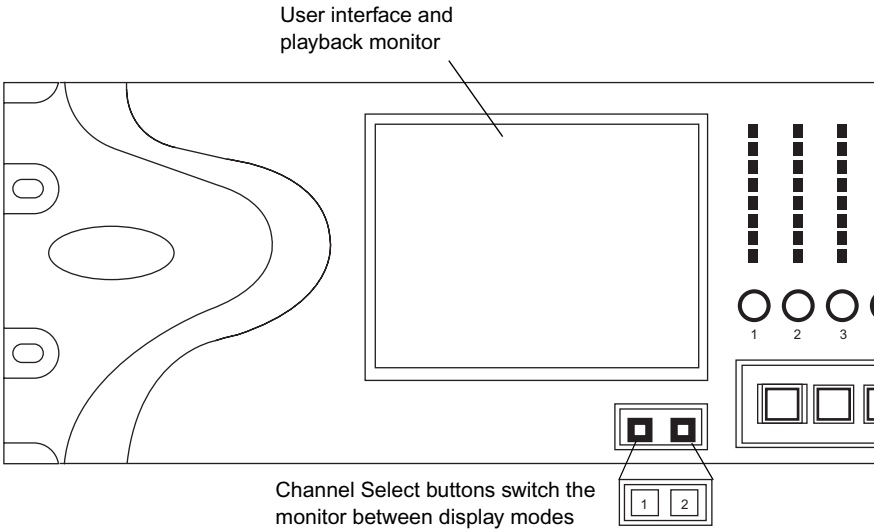
Visual Status Information

You can monitor a variety of status information using the UI and playback monitor, the LEDs, and the operational control buttons. Monitored system components are displayed on the Diagnostic button of the AirSpeed UI (see “Diagnostic Button” on page 73).

UI and Playback Monitor

The UI and playback monitor displays the AirSpeed UI configuration settings, the incoming video, or play out video. The display is selected with the Channel Select buttons and depends if you are in the Capture or Play out mode. The setup and configuration settings are explained in Chapter 4 and Chapter 5. The following figure identifies the monitor and buttons.

UI and Playback Monitor



Use the Channel Select buttons to switch between the Capture mode or the two Play out channels. You can watch the video that is either being captured or play back two channels of video that was just captured. Each time you press the a Channel Select button, they cycle through the following functions:

- Press Channel Select button 1
  - Capture mode (channel 1) — settings for capturing media

- Play mode (channel 1) — settings for play out on channel 1
- Video — view media that is being captured or playing on channel 1

• Press Channel Select button 2

- Play (channel 2) — settings for play out on channel 2
- Video — view media that is playing on channel 2

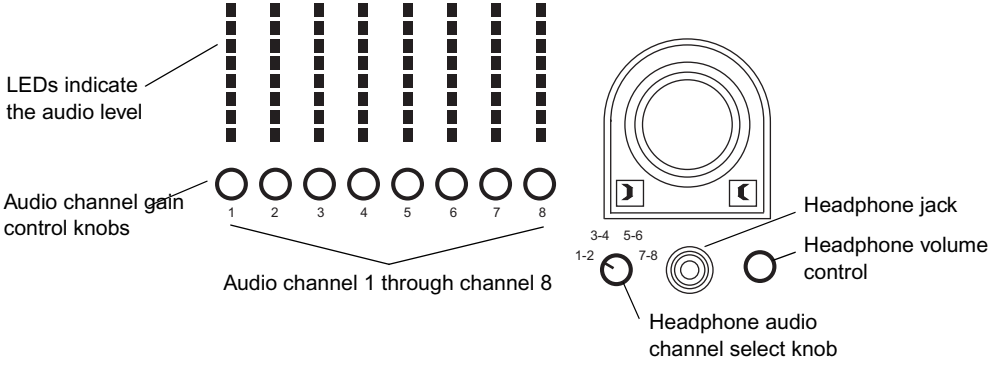
When capturing, media, Channel Select button 2 has no function.

Audio Knobs and LEDs

The front panel provides audio LEDs and gain control knobs for each of the eight audio channels. The audio knobs are recessed under each LED row and extend out the front panel when pushed. Push the channel knob again to retract the knob to be flush with the front panel. Turn the knob to adjust the output gain when playing media. The LEDs above the knob provide a visual indication of the signal for each channel. There are numbers under each knob indicating the audio channel it controls.

The following figure shows the eight audio channel control knobs and LEDs. HeadPhone controls are also identified.

Audio Controls



The LEDs reflect the current audio capture level. Use the gain control knobs to manually adjust the audio gain during playout. Green and yellow LEDs help illustrate the audio levels.

You cannot adjust the gain of the audio being captured.

The audio LEDs on the front panel monitor audio between –12 dB to –35 dB. The following table compares the audio range with the markings stenciling on the front panel.

Audio LEDs in Full Scale Digital

Stenciled Scale	Actual Value From Full Scale Digital
+3 dB	– 12 dB
+1 dB	– 14 dB
0 dB	– 15 dB
– 1 dB	– 16 dB
– 3 dB	– 18 dB
– 5 dB	– 20 dB
– 10 dB	– 25 dB
– 20 dB	– 35 dB

The eight audio gain controls are expected to be used when the AirSpeed is being configured, and not during a broadcast. Typically the AirSpeed is calibrated to house gains, although there might be other legitimate configurations.

To calibrate the AirSpeed audio for playout, temporary press the audio gain control knob allowing it to extend out of the front panel and can be adjusted. There is a separate gain control for each of the eight audio output channels.

Select the Play 1 channel by pressing the Channel Select button 1. Play a test tone clip and use the audio gain control knobs to adjust the audio gain outputs on the rear of the AirSpeed associated with that playout channel. The audio output channels map to the Play 1 and Play 2 channels as described the “Channels Tab” on page 84.

The audio output channels depend on what Channels are selected in the Setup > Channels > Audio Channel Selection During Playback setting. Audio could be set to 0, 4, or 8 audio channels. If Channel 1 is set to eight, all eight audio gain controls are associated with the Play 1. If the Play 1 channel has four

audio channels allocated to it, you can have the other four channels allocated to Play 2. The Audio Channel Selection During Playback setting maps which audio gain controls are associated with each Play channel.

Set the Audio Channel Selection During Playback setting so that all eight channels are allocated to Play 1. Make sure the test tone clip has audio on all the relevant channels (if the playback channel has all eight audio channels allocated to it, make sure you play a test clip with eight channels of audio). The LEDs give you feedback as to which audio channels have audio present.

Play the test tone clip on the Play 1 channel and adjust the gains so that output audio on each channel is at the house levels. When you have finished setting the audio gain controls, push them back into the recessed position to prevent inadvertent changes. While recessed, they are flush with the front panel.

Changes to the gains happen in real time, as soon as you adjust the volume control, you will see and hear the signal change.

Reallocated all eight audio channels to the Play 2 channel using the Setup > Channels > “Audio Channel Selection During Playback” settings. Select the Play 2 channel by pressing the Channel Select button 2. Play a test tone clip on Play 2 channel and repeat the adjustment process.

Audio Gain Precaution

If Channel Select button 1 is selected and you change audio gains on channels associated with the Play 2 channel, or if you have Channel Select button 2 selected and you change audio gains on channels associated with the Play 1 channel, the change does not occur until the next time you load a clip on that Play channel. Only adjust audio gains on the Play channels associated with the currently selected playback channel.

Headphone Jack, Volume, and Channel Select

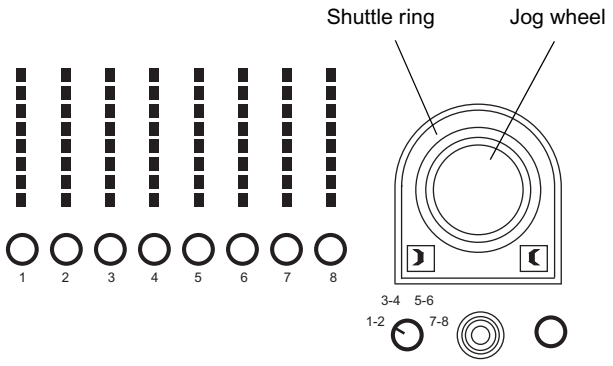
A stereo headphone jack is provided on the AirSpeed front panel. The jack provides output for two audio channels at a time. Select channels 1–2, 3–4, 5–6, or 7–8 using the audio channel select knob. Adjust the headphone volume using the headphone volume control. Controls are identified in “Audio Knobs and LEDs” on page 27.

Shuttle Ring and Jog Wheel

The Shuttle ring and Jog wheel on the front panel allow you to quickly search and scan captured clips while viewing them on the UI and playback monitor. Turning the outer Shuttle ring allows variable speed playback, both forwards and backwards. The speed is related to the extent of rotation away from the starting position of the wheel. Rotate the ring clockwise for forward shuttle, rotate the ring counter-clockwise for reverse shuttle. The shuttle plays the video forward or backward up to 5 times the real time speed. The clip continues to move until the ring is released or returned to its center position.

The center wheel is the Jog wheel allowing you to view a clip frame-by-frame. The speed and direction is directly proportional to the speed and direction that the wheel is rotated. The following figure shows the Shuttle ring and Jog wheel.

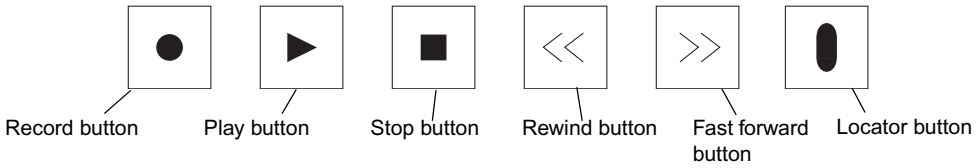
Shuttle Ring and Jog Wheel



Operational Control Buttons

The following figure shows the operational control buttons. These buttons have a backlight to help determine the capturing state of the AirSpeed. The following table lists the functions of these buttons and Chapter 4 lists all the front panel button functions.

Operational Control Buttons



The following table lists the functions of the buttons that light.

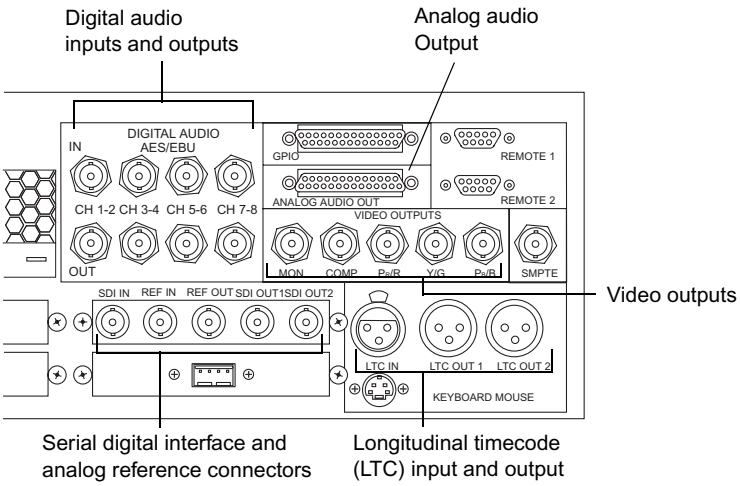
Operation Control Buttons

Button	Indicator and Condition
Record	Solid red when system is capturing.
Play	Plays back video captured from the AirSpeed. Two video clips can be played back; one clip on each channels.
Stop	Lit when system is paused.
Rewind/Fast Forward	Lit when system is shuttling.
Locator	Mark frames where you want to identify later while editing the media. You can mark up to 8 frames per clip.

Rear Media Connections

The AirSpeed supports industry-standard video and audio inputs and outputs to provide flexibility for individual requirements. The following figure shows the rear layout of the AirSpeed audio and video connections.

Audio and Video Rear Panel Connectors



The following table lists the inputs and outputs on the AirSpeed. For details on each connector, see Chapter 2.

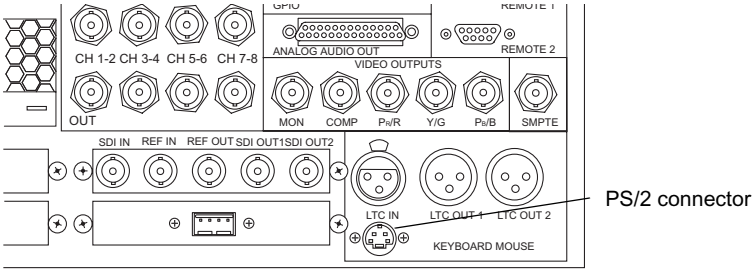
Video and Audio Connectors

Connector	Description
Serial Digital Interface	1 serial digital interface (SDI) input (1 BNC) 2 SDI outputs (2 BNC)
Analog Reference In and Loop Out	1 reference input (1 BNC) 1 reference output (1 BNC)
Video Outputs	1 composite output with overlay for monitoring the source video (1 BNC) 1 composite output (1 BNC) 1 component output (rear panel, 3 BNC)
LTC In and Out	2 analog TC outputs (2 XLR) 1 analog TC input (1 XLR)
Audio Inputs	8 digital audio AES/EBU inputs (4BNC, software configurable)
Audio Outputs	8 digital audio AES/EBU outputs (4BNC, software configurable) 8 analog audio outputs (25-pin cable included)

Keyboard and Mouse

A keyboard and mouse can be used to navigate through the AirSpeed UI. AirSpeed ships with a splitter cable that connects to the PS/2 connector on the rear of the enclosure and provides two PS/2 connectors. Connect both the keyboard and mouse to the appropriate connector on the PS/2 splitter cable. The keyboard and mouse connectors are labeled on the PS/2 splitter cable.

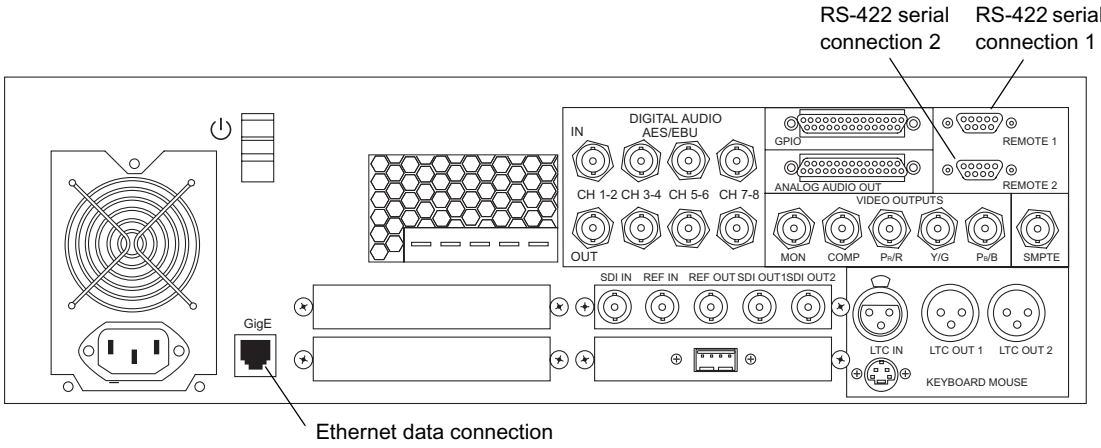
Keyboard and Mouse PS/2 Connector


CH 1-2 CH 3-4 CH 5-6 CH 7-8
OUT
ANALOG AUDIO OUT
REMOTE 2
VIDEO OUTPUTS
MON COMP PR/R Y/G PB/B SMPTE
SDI IN REF IN REF OUT SDI OUT1 SDI OUT2
LTC IN LTC OUT 1 LTC OUT 2
KEYBOARD MOUSE
PS/2 connector

Control Connectors

The following figure shows the control connectors on the rear of the AirSpeed.

Control Connectors



The following table lists the connections used for controlling the AirSpeed. For details on each connector, see Chapter 2.

Control Connectors

Connector	Description
Ethernet	Gigabit (1000BASE-T) Ethernet data connection
Remote 1 and Remote 2	9-pin female RS-422 remote operational control connector

Chapter 2
Connections

This chapter explains each of the interface connections on the AirSpeed. Although you do not need to connect your audio and video inputs and outputs for the initial setup, you do need an Ethernet connection to initially configure each AirSpeed.

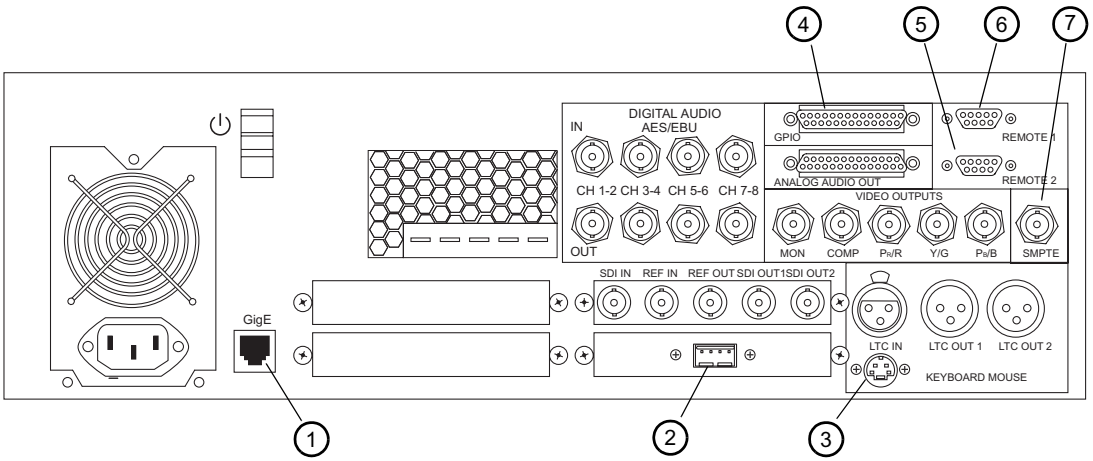
Do not connect the AirSpeed to your Avid Unity MediaNetwork until you have initially configured the AirSpeed with an IP address provided by your network administrator.

The initial configuration is done using the Ethernet port connected (GigE) on the rear of the AirSpeed. The GigE connector is identified in the “Control Connections” on page 36. For more information on the initial configuration, see Chapter 5.

Control Connections

The following figure identifies the network, serial, PS/2, USB, and alarm connectors on the AirSpeed. For a description of each connector, see the following table.

Serial, Ethernet, and General Purpose Interface Connectors



AirSpeed Serial, Ethernet, and Timecode Identifiers

Number	Label	Function
1	Gig E (Ethernet control interface)	1000BASE-T data port Ethernet connection to the Avid Unity MediaNetwork. Connects to a network switch and provides a fast link to the Avid Unity MediaNetwork. AirSpeed use this port to communicate with the Avid Unity MediaManager.
2	USB	Universal serial bus (USB) connection, used for manufacturing functions. The use of a USB keyboard or mouse is not supported on the USB connector.
3	KEYBOARD/MOUSE	Standard PS/2 compatible mouse and keyboard input, 6-pin mini DIN connector. The AirSpeed is shipped with a PS/2 splitter cable so that both the keyboard and mouse can be connected at the same time. The port can also be used with a trackball or other compatible pointing device.

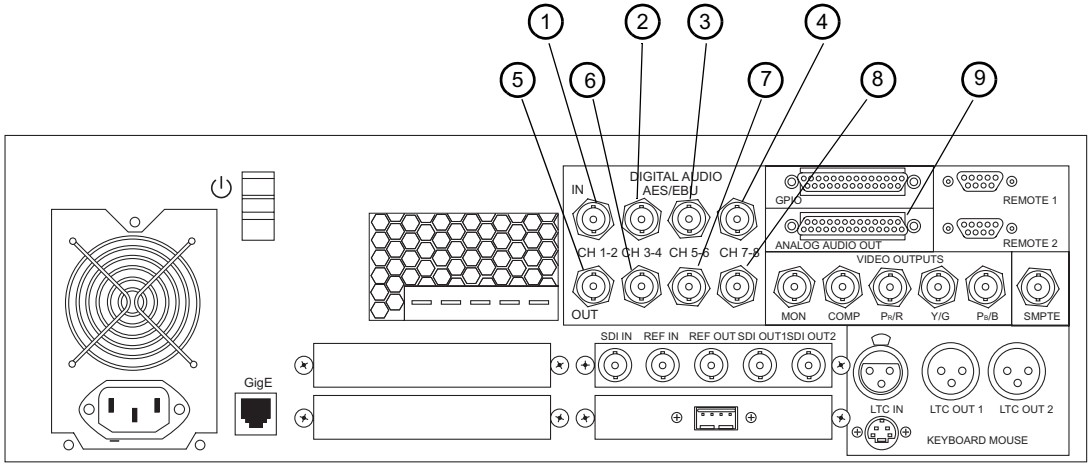
AirSpeed Serial, Ethernet, and Timecode Identifiers (Continued)

Number	Label	Function
4	GPIO (not functional in the initial release)	General purpose input/output for remotely controlling the AirSpeed, 25-pin DSUB connector. For example, you can invoke a GPI command to start capturing and one to stop capturing.
5	REMOTE 1 (serial interface)	9-pin female RS-422 serial interface used for remote control to the AirSpeed.
6	REMOTE 2 (serial interface)	9-pin female RS-422 serial interface used for remote control to the AirSpeed.
7	SMPTE	SMPTE output provides a alarm signal (SMPTE 269M) if the AirSpeed is in an error condition, BNC connector. The alarm provides a logic *low going* closure output whenever a hardware fault exists in the system (including a failed drive or a detected fault in other circuitry).

Audio Connections

The following figure identifies the audio connectors on the AirSpeed. For a description of each connector, see the following table.

Audio Connectors



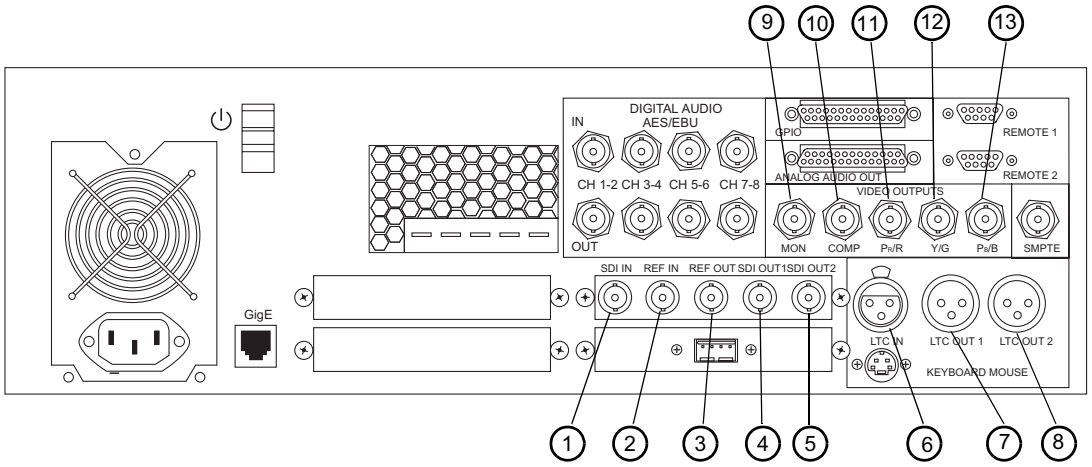
Audio Identifiers

Number	Label	Function
1	AES/EBU AUDIO IN CH 1–2	Digital AES/EBU audio input, BNC connector
2	AES/EBU AUDIO IN CH 3–4	Digital AES/EBU audio input, BNC connector
3	AES/EBU AUDIO IN CH 5–6	Digital AES/EBU audio input, BNC connector
4	AES/EBU AUDIO IN CH 7–8	Digital AES/EBU audio input, BNC connector
5	AES/EBU AUDIO OUT CH 1–2	Digital AES/EBU audio output (48 KHz 16/24 bit), BNC connector; signal source is software selectable.
6	AES/EBU AUDIO OUT CH 3–4	Digital AES/EBU audio output (48 KHz 16/24 bit), BNC connector; signal source is software selectable.
7	AES/EBU AUDIO OUT CH 5–6	Digital AES/EBU audio output (48 KHz 16/24 bit), BNC connector; signal source is software selectable.
8	AES/EBU AUDIO OUT CH7–8	Digital AES/EBU audio output (48 KHz 16/24 bit), BNC connector; signal source is software selectable.
9	ANALOG OUT	Channels 1 - 8 Professional level audio output, 25-pin DSUB connector; a DB25 to XLR cable is provided. Signal source is software selectable.

Video/LTC Connections

The following figure identifies the video and timecode connectors on the AirSpeed. For a description of each connector, see the following table.

Video Connectors



Video/LTC Identifiers

Number	Label	Function
1	SDI IN	Serial Digital Interface input, BNC connector.
2	REF IN (reference input)	Video reference (REF) input for a black burst or house sync signal, BNC connector.
3	REF OUT (reference output)	Video reference (REF) output sync signal for daisy-chaining the house sync to other media equipment, BNC connector. *If the REF OUT signal is not used, A terminator must be attached to the REF OUT connector. If more than one device is connected, the last device in the REF chain must be terminated.*
4	SDI OUT1	Serial Digital Interface output number 1, BNC connector.
5	SDI OUT2	Serial Digital Interface output number 2, BNC connector.

Video/LTC Identifiers (Continued)

Number	Label	Function
6	LTC IN	Longitudinal timecode input, female connector. Provides a feed to the AirSpeed server for an analog timecode signal, allowing an alternate source generated timecode to be applied to the captured material.
7	LTC OUT 1	Longitudinal timecode output, male connector. Analog timecode signal that can be used by external devices that require such a signal for their capture or command and control operations. LTC 1 output is also available as a “pass through” signal during AirSpeed capturing. During playback it reproduces the start frame timecode signal of the clip, and increments as the video frames increment during the play operation.
8	LTC OUT 2	Longitudinal timecode output, male connector. Analog timecode signal that can be used by external devices that require such a signal for their capture or command and control operations. During playback it reproduces the start frame timecode signal of the clip, and increments as the video frames increment during the play operation.
9	MON (monitor)	Composite video output, BNC connector. Connects to analog video input of your optional external output monitor. Text overlay is displayed on this output.
10	COMP (composite)	Composite video output, BNC connector. Connects to analog video input of decks, monitors, or routers.
11	P_R/R, ANALOG OUT (component)	Analog component video output, Pr color difference signal, BNC connector; connects to R-Y video input of decks.
12	Y, ANALOG OUT (component)	Analog component video output, Y luma, BNC connector; connects to Y video input of decks.
13	P_B/B, ANALOG OUT (component)	Analog component video output, Pb color difference signal, BNC connector; connects to B-Y video input of decks.

Chapter 3
Installation

This chapter provides AirSpeed installation, connections, and system "power-up" instructions. The AirSpeed requirements in the Avid Unity workgroup environment are also listed.

You might want to configure the AirSpeed prior to rack mounting if the front panel access limited in your rack location.

Do not connect multiple AirSpeed recorders to your Avid Unity environment until you have assigned a new unique IP address to each AirSpeed.

Installing AirSpeed in a Rack

The AirSpeed is designed for 19-inch (483-mm) rack enclosures and requires three EIA rack units (3U), or 5.25 inches (133.4-mm) of rack space. The rail kit installs into rails that are between 24- to 30-inches deep. AirSpeed provides rack nuts for those rack enclosures that do not have threaded holes. Rack-nut clips position the rack nuts at the holes of the rack and are used to secure the rack components in place.

The AirSpeed ships with slide rails, brackets, and rack-mount screws. Once the inner slide rails are mounted to the AirSpeed and the outer slide rails are mounted to the rack, you can secure the AirSpeed in the rack so it doesn't slide forward. If your rack has threaded holes, you might have to supply your own rack fasteners. If your rack does not have threaded holes, install the rack nuts included with the AirSpeed (see "Attaching the Brackets and Outer Rails to the Rack" on page 44).

The UI and playback monitor provides optimum viewing when positioned at eye level and lower. If you are looking up at UI and playback monitor the clarity is impaired.

To ensure the stability of the rack enclosure, start from the bottom when you install the rack components in the rack enclosure.

Rack-mount Requirements:

- Elevated Operating Ambient — If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment might be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the maximum ambient temperature (Tma) specified by the manufacturer.
- Reduced Air Flow — Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.

  AirSpeed airflow is from the front of the chassis enclosure to the rear. Make allowances for cooling air to be available to the front panel surface and no restrictions at the rear.
- Mechanical Loading — Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.

  Make sure your rack enclosure is stable enough to prevent a tip over hazard when one or more AirSpeed systems are extended on the sliding rails.
- Circuit Overloading — Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.
- Reliable Earthing — Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g. use of power strips).

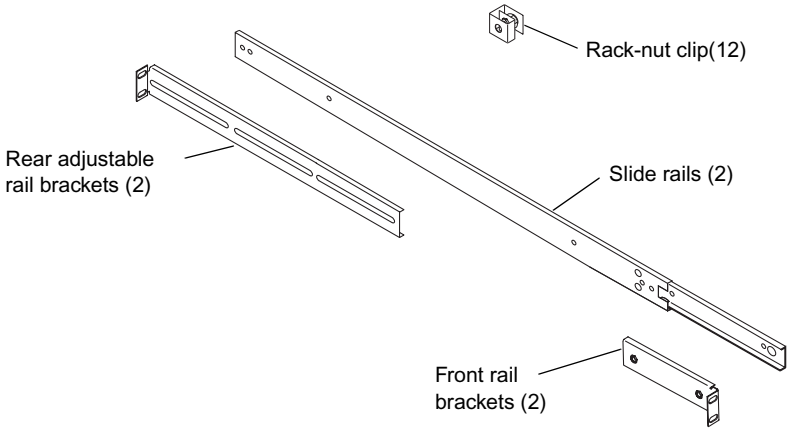
Checking the Contents of the Rack-Mount Kit

Unpack the rack-mount kit, the kit contains the following:

- Six sections of rails
  - Two slide rails
  - Two front rail brackets
  - Two rear adjustable rail brackets
- Assorted screws and nuts
  - 12 – rack-nut clips
  - 4 – nuts (not shown)
  - 4 – washers (not shown)
  - 8 – 8-32 x .25” truss-head screws (not shown)
  - 8 – 8-32 x .5” pan-head screws (not shown)
  - 4 – 10-32 x .75” flat-head screws (not shown)
  - 4 – 10-32 x .75” truss-head screws (not shown)
  - 4 – 10-32 x .75” black screws with nylon washers (not shown)

Use your own rack hardware if your rack has threaded holes or unique fasteners.

Rack-Mount Kit Contents



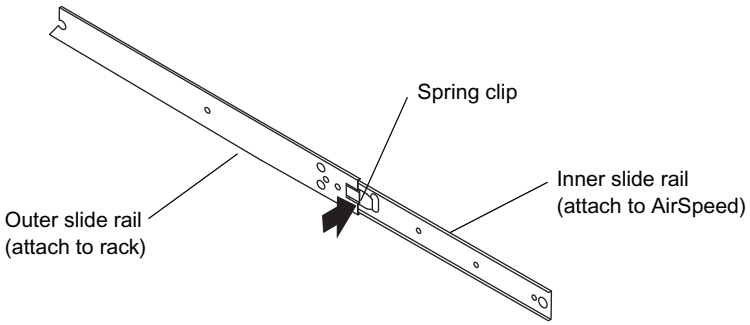
Separating the Slide Rails

You need to separate the slide rails and attach the inner “movable” section to the AirSpeed and the outer “fixed” section to the rail brackets. Once the rail brackets are attached to the outer section, the outer section with the rail brackets are attached to the rack rails.

To separate the slide rails:

1. Slide the slide rail completely open.
2. Press the spring clip on the inside of the slide rail.
3. Pull and separate the two halves.

Separating the Slide Rails



Attaching the Brackets and Outer Rails to the Rack

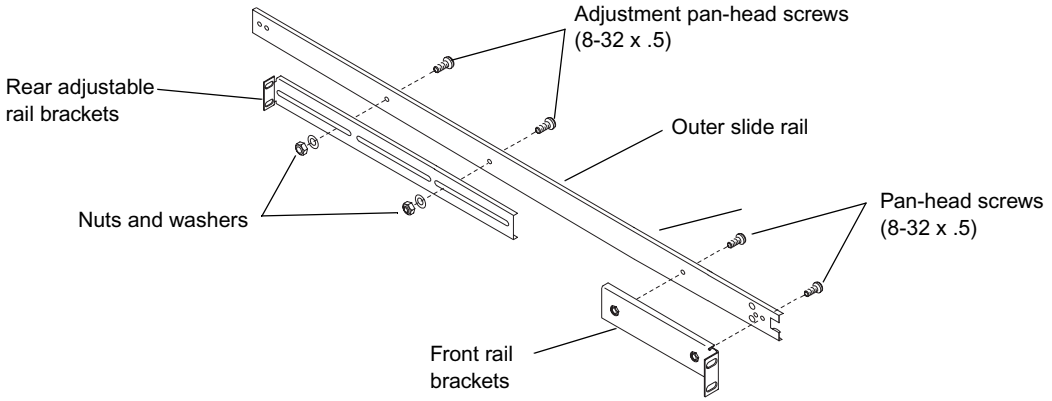
After separating the slide rails as previously described, attach the brackets to the outer slide rails and secure the outer slide rail assemblies to the rack.

To attach the bracket and rails:

1. Attach the front rail brackets to the outer slide rail with two screws as shown in the following figure.
2. Complete the support rail assembly by connecting the rear adjustable rail bracket to the outer slide rail using two screws, nuts, and washers as shown in the following figure.

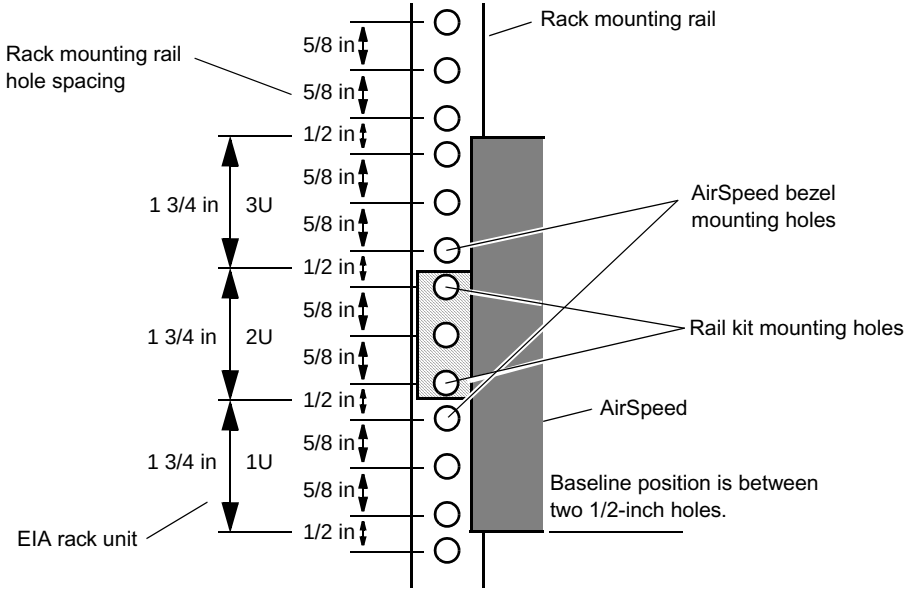
   Tighten the adjustment screws just enough so you can adjust the rails to the proper rack size.

Outer Support Rail Assembly



3. Repeat step 1 and step 2 with the other outer slide rail and brackets.
4. Select a position in the rack where you can mount the AirSpeed at eye level (or lower). The AirSpeed needs to be positioned at the proper baseline position (see the following figure).

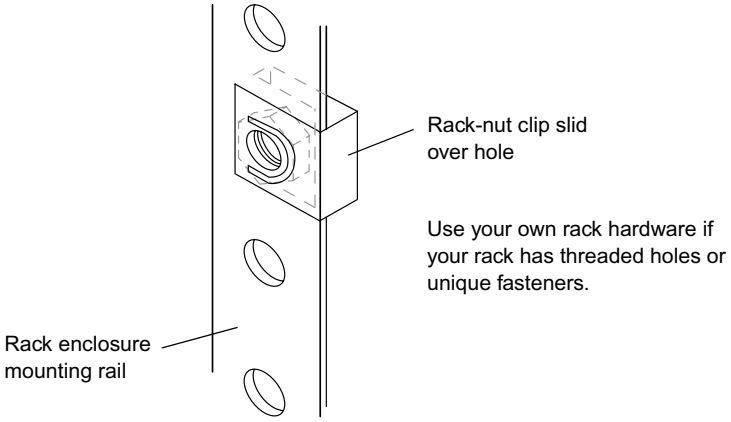
Positioning the AirSpeed



5. Install the rack nuts where the AirSpeed rail assembly and front panel will secure to the rack enclosure. If your rack enclosure has threaded holes, skip step 7.
6. From the inside of the enclosure rail, slide the rack-nut clip over the hole you want to use, see the following figure.

   Attach a rack-nut clip for each front and rear hole in the support rails. Each support rail needs 4 rack-nut clips for the front mounting rail and 2 rack-nut clips for the rear mounting rail.

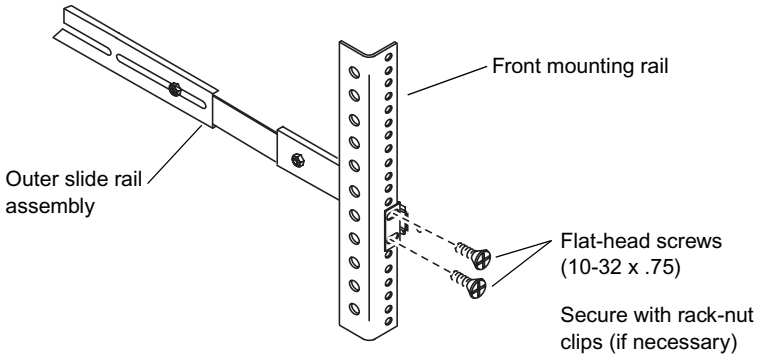
Attaching Rack Nuts onto the Rack Enclosure


Rack-nut clip slid over hole
Use your own rack hardware if your rack has threaded holes or unique fasteners.
Rack enclosure mounting rail

You should have someone helping you to hold the rail assembly while you are securing it.

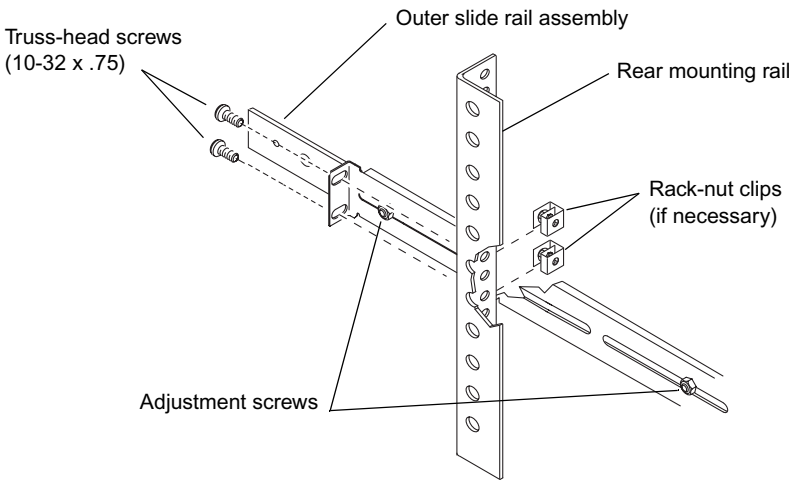
7. Place one outer slide rail assembly inside the rack rails. The rail ends should be outside of the front and back mounting rail surfaces.
8. Loosely attach the front of the outer slide rail assembly to the front mounting rail with the two flat-head screws, see the following figure.

Attaching the Outer Rail Assembly to the Front of the Rack



9. Attach the rear of the outer slide rail assembly to the rear mounting rail with the two truss-head screws, see the following figure.

Attaching the Outer Rail Assembly to the Rear of the Rack and Adjusting the Support Rail



10. Tighten all loose screws on the outer slide rail assembly: front mounting rail, the rear mounting rail, and the adjustment screws.
11. Repeat steps 7 through 10 for the second outer slide rail assembly.

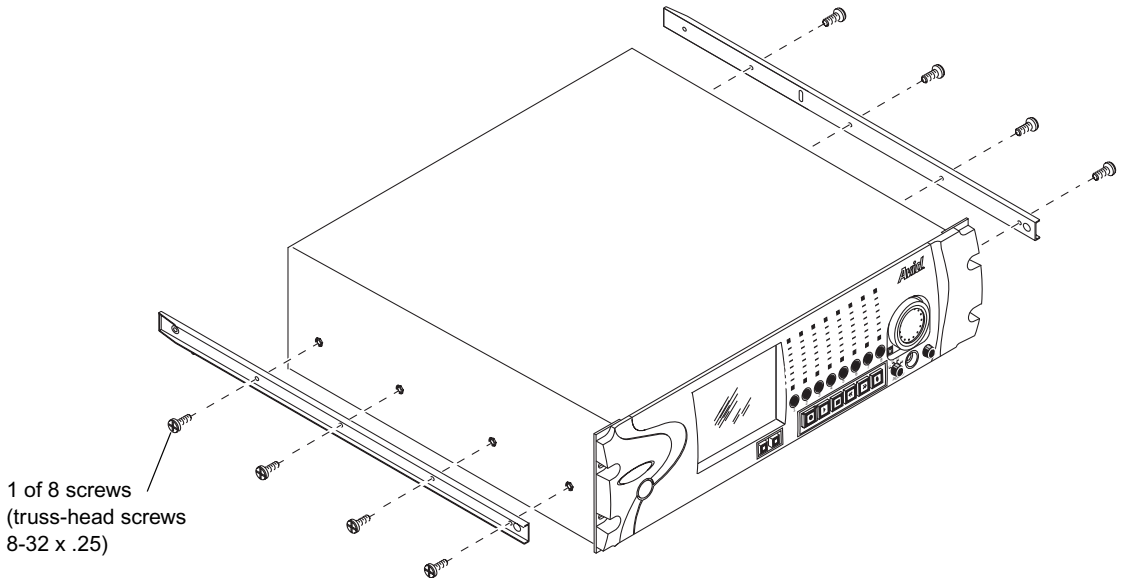
Attaching Inner Rails to the AirSpeed

After separating the slide rails as previously described (see "Separating the Slide Rails" on page 44), attach the inner slide rails to the AirSpeed.

To attach the inner slide rails:

1. Position the inner slide rail against the side of the AirSpeed so that the tapered end and release spring clip of the inner slide rail is toward the back of the unit, see the following figure.
2. Secure the inner slide rail to the AirSpeed encloser with four truss-head screws.

Attaching the Inner Slide Rails



3. Repeat step 1 and step 2 attaching the other inner slide rail on the other side of the AirSpeed.

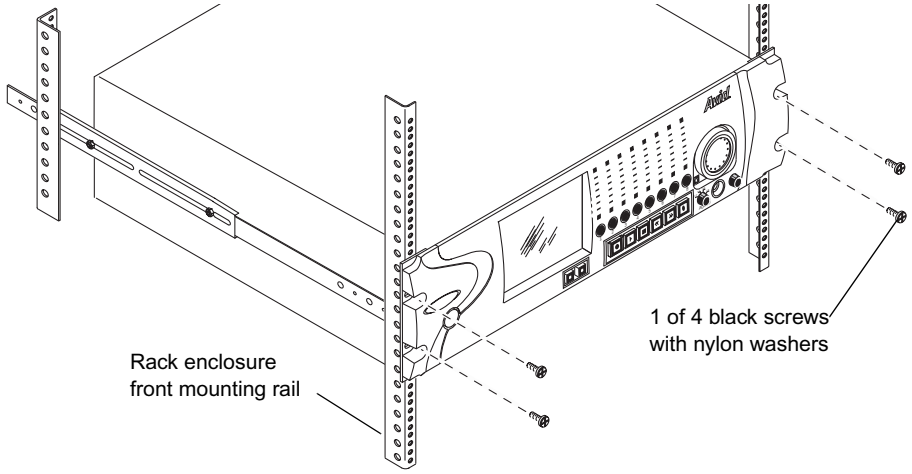
Securing the AirSpeed in a Rack

You should have someone helping you lift AirSpeed while you are positioning it into the slide rails.

To secure the AirSpeed to the rack enclosure:

1. Lift and position the AirSpeed so that the inner slide rails attached to the sides of the AirSpeed align with the outer slide rails secured to the rack.
2. Push the front of the AirSpeed flush against the front mounting rail. Align the holes in the AirSpeed bezel with the holes in the front mounting rail (see the following figure).
3. From the front of the rack enclosure, insert the screws with nylon washers through the AirSpeed and front mounting rail, and tighten.

Left Front Slide Bracket



Cabling

The following sections describe the cabling on the rear of the AirSpeed:

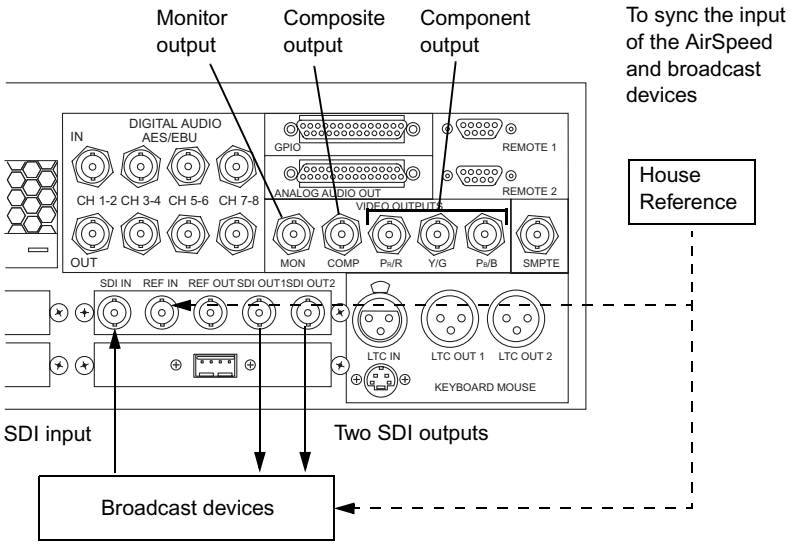
- SDI and Video Cables
- Audio Cable
- Timecode Cables
- Control and Communications Cables
- Power Cord

SDI and Video Cables

To connect video cables on the chassis:

1. Ensure that you have the proper digital AES/EBU (75 ohm-rated) and SMPTE 259M serial digital interface coaxial cables available.

SDI, Reference, and Video Output Connections



2. Connect a composite video reference source (house reference, black burst) to the Ref input connector. If the AirSpeed is the last device in your reference loop, terminate the remaining Ref Out connector with a 75Ω terminator. If the AirSpeed is in the *middle* of your reference loop, connect the remaining Ref Out connector to the next device's reference input.
3. Connect the SDI input connector to your incoming digital signal. Two different SDI outputs are available for sending SDI signals out to your other devices.

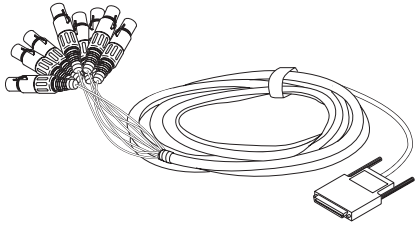
For information on selecting the component video format, see "Channels Tab" on page 84.

4. Connect the analog component video output connectors (Y, Pb, Pr) to your analog component video devices as required.
5. Connect the COMP connector (composite output) to a composite analog device if required.
6. Connect the MON connector (additional composite output) to an appropriate composite analog monitor.

Audio Cable

Avid provides an analog audio cable harness with the Avid AirSpeed. The cable uses a DB-25 connector on one end, and eight industry-standard XLR male audio connectors on the other end.

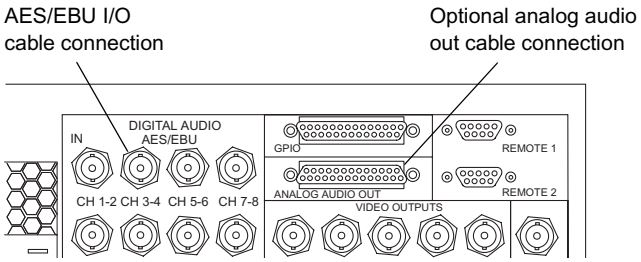
Analog Audio Output Cable



Avid analog audio cable provided with the AirSpeed

The connections between the AirSpeed and your source and destination equipment vary depending on the type of audio equipment you have. The following figure identifies the connections for your audio equipment. See “Audio Connections” on page 37 for exact connector locations.

Audio Input and Output Connections



To connect your audio equipment:

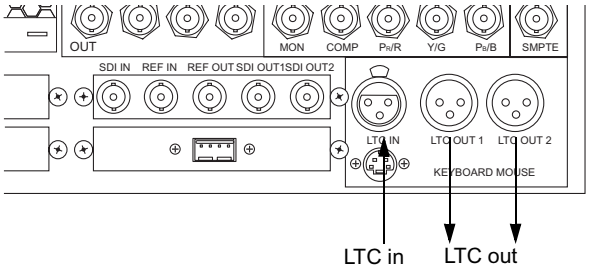
1. Connect the Avid analog audio out cable to the 25-pin Analog Audio Out connector.
2. Connect the eight analog audio out XLR connectors to the appropriate destination devices.
3. Connect the Digital Audio In connectors 1–2, 3–4, 5–6, and 7–8 to your AES/EBU digital audio source.
4. Connect the four DIGITAL OUT connectors to your AES/EBU audio device.

Timecode Cables

To connect longitudinal timecode (LTC) cables:

1. Connect your LTC timecode source to the LTC IN connector.
2. Connect the LTC OUT connector to your LTC timecode device.

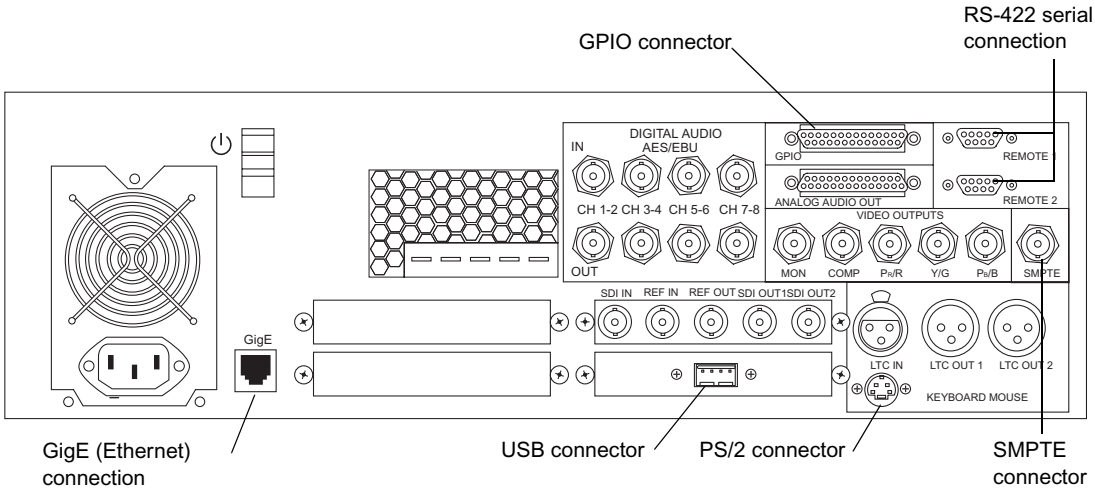
LTC Connection



Control and Communications Cables

The following figure identifies the connectors used to connect the control and communication cables.

Control and Communication Connections



To connect control and communications cables:

1. Locate the PS/2 splitter cable that came with your AirSpeed. You need to provide a standard PS/2 compatible keyboard and mouse.
2. Connect the male end of the splitter cable to the PS/2 connector on the rear of the Airspeed.
3. Connect the PS/2 compatible mouse to either female connector on the PS/2 splitter cable.
4. Connect the PS/2 compatible keyboard to either female connector on the PS/2 splitter cable.
5. Connect a Ethernet CAT-5 cable with a RJ-45 connector from the GigE connector to an Gigabit (1000BASE-T) Ethernet switch.

If the AirSpeed system is connected to only a single additional device (for example, a network with a single node at each end), no switch is required when using Gigabit Ethernet (GigE).

6. (Optional) Connect the SMPTE Alarm (BNC) connector to your facility SMPTE Alarm loop or other contact closure activated alarm system.

To connect GPIO cable on the rear panel (not functional for the initial release):

1. The general purpose input/output (GPIO) interface requires you to build a cable. Refer to "GPIO" on page 142 for GPIO connector pin assignments and build a cable using a 25-pin D-type female connector on one end. The other end of the cable depends on the GPIO interface on the device you are controlling.
2. Connect the 25-pin connector to the GPIO connector.
3. Connect the other end of the GPIO cable to the GPIO device.

To connect remote serial cables:

1. Connect one end of 9-pin serial cable to either the Remote 1 and Remote 2 RS-422 connector.
2. Connect the other end of the serial cable to your RS-422 device, such as an automation system or edit controller. The remote ports can be used for:
   - Remote control via VDCP protocol
   - Sony protocol (currently not supported)

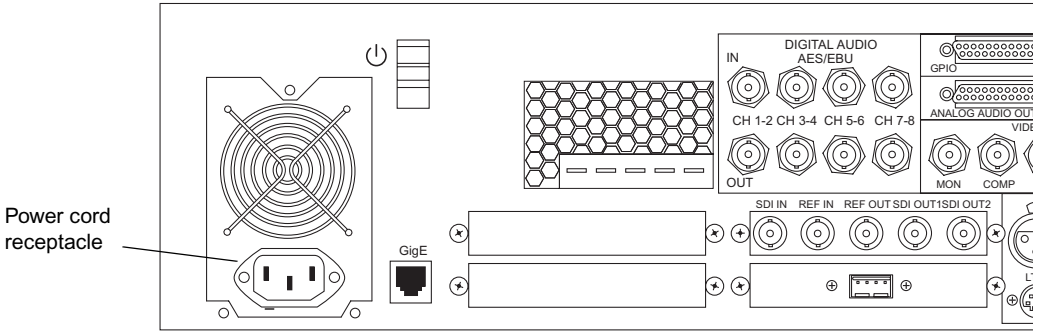
Automation systems can access any VDCP configured input or output channel from any Remote connector.

3. Connect the second remote port by repeating steps 1 and 2.

Power Cord

An U.S. IEC power cord is shipped with the AirSpeed. If your local power distribution is not compatible with the supplied cord, you must provide your own IEC power cable that is compatible with your country's power system. The power connector accepts 100 to 240 Vac, 50/60 Hz.

Power Connection



To connect power:

1. Attach the power cord to the power receptacle on the rear of the AirSpeed.
2. Connect the other end of the power cord to a properly grounded stable power source.

For maximum power protection, Avid recommends surge protected uninterruptible power supply (UPS).

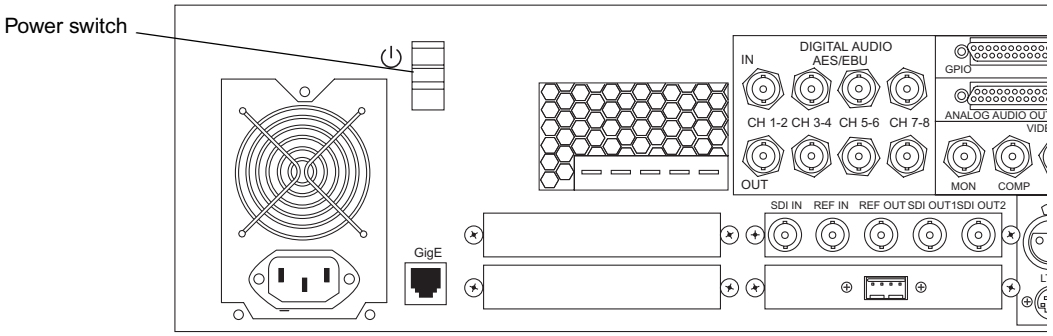
Power Up, Power Down

To power up the AirSpeed:

- Press the AirSpeed power switch; located on the rear panel.

This is a spring loaded switch that does not stay recessed after pressing it.

Power Switch



When the user interface appears on the front panel display, the system is ready for to be configured.

To power down the AirSpeed:

1. Press Channel Select button 1 until the UI is displayed.
2. Click the Shutdown button.

Shutdown Tab

3. Click Shutdown to completely turn off the software and hardware.
4. Click OK.

   A variety of internal tasks such as file system clean-up will be performed, and the console screen appears. Wait till the operating system text stops scrolling on the UI monitor and the word Reset is displayed twice.
5. Once the text in the console has stopped for approximately 10 seconds, press the power switch located on the rear chassis panel to turn the AirSpeed off.

Workgroup Requirement

You must have the Avid Unity MediaNetwork workgroup environment already operating before adding the AirSpeed to the environment.

Configuration

The AirSpeed is configured at each site as a network appliance. Site-specific settings need to be applied for the AirSpeed to operate in your workgroup environment. Each AirSpeed installed needs to be uniquely configured.

AirSpeed requires a fixed, internet protocol (IP) addresses for the network interface. As part of a setup procedure, your administrator must first configure an administrative client system to match the AirSpeed configuration IP address. Typically, a direct physical connection is established using this IP address.

Program AirSpeed with the following:

- A site-specific host name/domain name
- A site-specific node IP address and mask for the network interface
- The DNS server IP address
- The NTP server IP address
- The PortServer Pro name (if DNS is present, if not an IP address)
- MediaManager user name and password
- MediaManager host name (if DNS is present, if not an IP address)
- Studio name (if using a Studio environment, do not use the name of any system on the network)

Some setting changes require you to power cycle the AirSpeed. A message appears in the UI and playback monitor when you must power cycle the AirSpeed for the changes to take effect.

Do not connect any AirSpeeds to your workgroup environment until you have assigned a new, unique IP address to each AirSpeed.

Setting the Time Zone, Date, and Time

When setting up the AirSpeed for the first time, you need to select your time zone, then set the date and time.

The AirSpeed must be idle when you set or change the date or time.

To localize the AirSpeed with the date and time.

1. Open a console window by simultaneously pressing `Ctrl+Alt+F1`.
2. Log in using:
   - login name — **`maint`**
   - password — **`mars`**

3. At the command prompt, type **`cd /usr/share/zoneinfo`**, and press **`Enter`**.
4. Type **`ls`**, and press **`Enter`**.

   Find the correct continent, or zone for your specific locale from the list. The following list is displayed:

```
Africa      Australia   Etc       MET       WET
America     CET         Europe    MST       posixrules
Antarctica  CST6CDT     Factory   MST7MDT   zone.tab
Arctic      EET         GMT       PST8PDT
Asia        EST         HST       Pacific
Atlantic    EST5EDT     Indian    SystemV
```

You must type the selections exactly like as it appears in the list (upper or lower case).

5. At the command prompt, type **`cd <region or zone>`**, and press **`Enter`**.

   For example, if your continent is America, type `cd America`, and press `Enter`. You are now at the `/usr/share/zoneinfo/America` directory.
6. At the command prompt, type **`ls`** and press **`Enter`**.

   Choose the closest city file to your location.
7. At the command prompt, type: **`cp <city> /etc/localtime`** and press **`Enter`**.

   For example, if your city is New York, type `cp New_York /etc /localtime` at the command prompt.

   After pressing `Enter`, the city file is copied in the /etc directory.

To set the date and time:

1. While still in the console window, type **`date`** and press **`Enter`** to view the current date and time set.
2. To set the date, type **`date`** and enter the date and time in the following format and press **`Enter`**.

   yymmddhhmm.ss

Do not use spaces or any characters between the numbers.

   After pressing enter, the date and time display are displayed. Confirm that the information is correct. If not repeat Step 2.

3. Close the console window by simultaneously pressing **Ctrl+Alt+F3**.
4. Restart the AirSpeed by selecting Shutdown > Restart Entire System in the AirSpeed UI.
5. Click OK.

Accessing the AirSpeed Through Telnet

The AirSpeed console can also be accessed using remote systems on the Avid Unity network. Telnet is a common way to remotely access the AirSpeed using a client system such as a NewsCutter. You need to know the IP address and host name of the target AirSpeed. The following information does not provides the details on how to completely set the time zone but, advanced administrators might find this information helpful.

This procedure is one way to get to the a time zone utility in the AirSpeed console. This procedure is not recommended because some selections are difficult to select without a color UI. There are several free Telnet applications on the Internet that make it easier to use this utility. For example, PuTTY is a Telnet application that has been used.

Windows® HyperTerminal as also been used but you must make sure you select TCP/IP for your connection. Avid has found that selecting VT100 provides the best results.

To access your AirSpeed using Telnet to select the time zone:

1. Make sure your AirSpeed is powered on.
2. From a Avid Unity Client system, click Start > Run.
3. Type **Telnet** <***AirSpeed host name***> and press **Enter**.
4. Log in using:
   - login name — **maint**
   - password — **mars**
5. Type **tzsetup** and press **Enter**.
6. Select your region, country, and time zone.
7. Enter the date and time as previously described.
8. Close the Telnet application.

Setting Up for Transferring to Unity

After setting up the appropriate Avid Unity MediaNetwork settings for the AirSpeed in the Setup > Network tab. Enter the settings for the MediaManager and PortServer in the Setup > Send tab. Remember to save the settings on each tab.

License Agreement

Once the AirSpeed is connected to the Avid Unity MediaNetwork, you must accept the Avid End User License Agreement. AirSpeed uses an Avid Unity MediaNetwork Ethernet client license.

Adjusting the Audio Playout Gain

The eight audio gain controls on the front panel are used to calibrated the AirSpeed for playout. These audio gain control do not provide any function during capture. Avid recommends you playout a test tone on all eight audio channel for both Play channels. There is a separate gain control for each of the eight audio output channels. While the tone is playing monitor the audio out on the rear of the AirSpeed with a scope to fine tune the output audio. Use the eight audio gain control knobs to vary the output. For more information see “Audio Knobs and LEDs” on page 27.

Use the Channel Select buttons to select the playout channel. The audio gain controls only adjust the audio for the Play channel selected and the audio channels allocated to that Play channel in the Setup > Channels > “Audio Channel Selection During Playback” settings. Once the adjustment has been made, recess the audio gain control knobs back into the front panel so they are not easily changed.

Chapter 4
User Interface

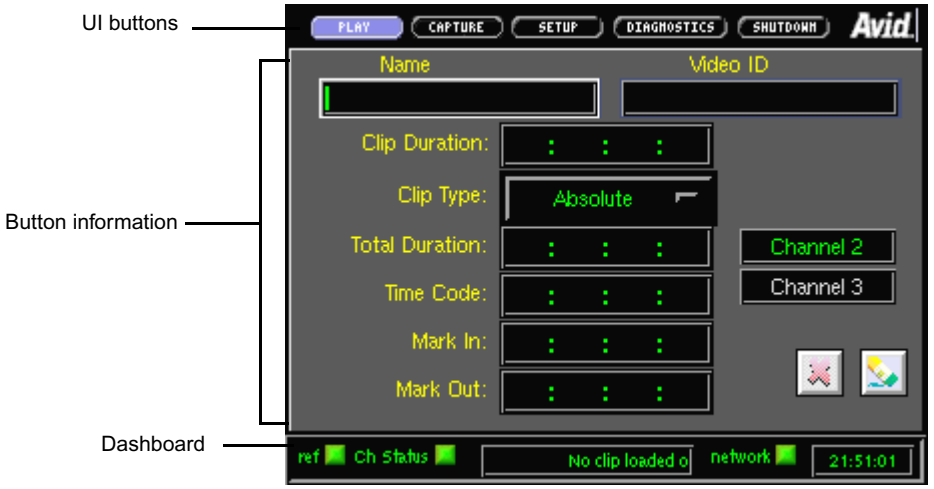
This chapter introduces the AirSpeed user interface, and provides detailed descriptions of all user interface sections and controls. The following areas are described:

- Introduction to the AirSpeed User Interface
- Dashboard
- Play Button
- Capture Button
- Setup Button
- Diagnostic Button
- Shutdown Button

Introduction to the AirSpeed User Interface

The following figure shows the AirSpeed user interface (UI), the Play button selected.

AirSpeed User Interface



The AirSpeed UI is divided into the following sections:

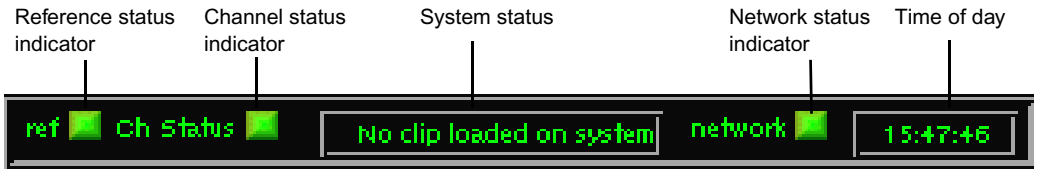
- Dashboard — provides a panel which is always present at the bottom of each button in the UI. It provides the AirSpeed status and also displays the internal clock. For details, see "Dashboard" on page 65.
- Play button — allows you to play recorded clips that are on the internal AirSpeed drives. You can play back clips on two separate channels. While playing back clips you can enter Mark IN and Mark OUT points and create locators. See "Play Button" on page 67 for information on each setting.
- Capture button — allows you to capture media with or without the timecode. You can remotely capture the media or manually press the Record button on the front panel and start capturing the media instantly. You can also set the duration of the capture in addition to setting Mark IN and Mark OUT points, and locators. See "Capture Button" on page 70 for information on each setting.
- Setup button — allows you to set system parameters such as channel configuration, video setup, network configuration and Controller Setup. For details, see "Setup Button" on page 72.

- Diagnostic button — provides front panel, disk drive, CPU fan, network, and license status. For details, see“Diagnostic Button” on page 73.
- Shutdown button — presents three different system level command options. For details, see “Shutdown Button” on page 74.

Dashboard

Each button has a dashboard that displays the following status.

AirSpeed Dashboard



The dashboard display is explained as follow:

- Reference status indicator — Indicates (by color) the presence and quality of your reference signal. Red indicates no signal and green indicates usable reference signal is present and the system is locked to it.
- Channel status indicator — Indicates (by color) the presence and quality of your SDI input signal. Red indicates no signal and green indicates usable input signal is present.
- System status — Displays a scrolling text message indicating the status of the system. Messages vary depending on the selected button and the operating state of the AirSpeed.
- Network status indicator — Indicates (by color) the presence of your network connection.
  - Green — Indicates a usable network signal and the TransferManager are present.
  - Yellow — Indicates a network signal is present but the MediaManager or TransferManager is not available.
  - Red — Indicates no network signal.
- Time of day — displays the AirSpeed system’s internal clock. For more information see “Accessing the Setup Subtabs” on page 76.

The following buttons are used throughout the AirSpeed UI. Not all of the buttons are used in each button. The meanings of the common AirSpeed UI buttons are described in the following table.

Common AirSpeed Common UI Buttons

Button	Name	Function
	Create	The Create button activates when a new Video ID has been entered. Click Create to create a new file after all the fields in the button are filled in as desired. Once clicked, the Record button allows you to capture the file. Used in the Capture window.
	Delete	The Delete button activates when a known Video ID is entered, allowing you to delete the file. Used in the Play and Capture windows.
	Unload	The Unload button clears all text fields in the window. Used in the Play and Capture windows.
	OK	Accepts the information or selection and performs the function. Used in the Shutdown window.
	Save	Accepts the information and saves the settings. Used in the Setup window.
	Revert	Returns you to the information that was previously saved. Once you click the Save button, the Revert buttons uses the new saved information. Used in the Setup window.

Play Button

The following figure shows the Play button. Channel 1 and channel 2 can have unique information (two different clips) loaded at the same time. Switch between the clips using the UI and Monitor buttons. For details on the Channel Select buttons, see “Button and Wheel Functions” on page 101. AirSpeed can play only the clips that are on the internal drives.

Play Button

Most of the text boxes in the AirSpeed UI require input from a keyboard. After entering information in a text field press the Enter key to enter the data and advance to the next field. The Tab key also advance you to the next user input field. Shift+Tab *does not* bring you back to the previous field.

- Name — Type the name of the clip you want to view. You can also type in the Video ID instead. Once you press enter the Video ID will display.
- Video ID — Type the reference identification (ID) for the video you want to view. You can also type in the Name instead. Once you press enter the Name will display.
- Clip Duration — Displays the length of time between the Mark IN and Mark OUT points. If no Mark IN and Mark OUT are set, the time matched the Total Duration text box.

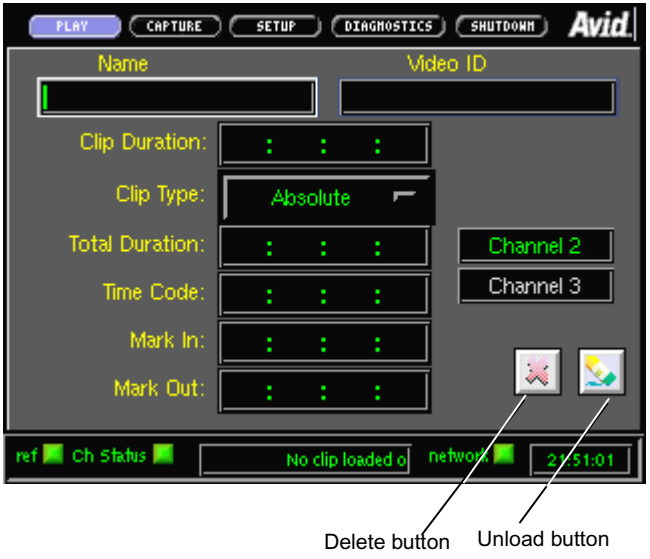
- Clip Type — Select the type of media from the pull-down menu. The choices are as follows:
  - Virtual — Plays the entire clip regardless of the Mark IN and Mark OUT points. For information on the differences between virtual and absolute modes, see "Timecode Modes" on page 111.
  - Absolute — Plays the clip from the Mark IN point to the Mark OUT point. If Mark IN and Mark OUT points were not set, the entire clip is played.
- Total Duration — Shows the total extent of all media captured for the current clip (the amount of time between the first captured frame and the last). This will be the same as the Clip Duration unless Mark IN or Mark Out points have been set.
- Time Code — Displays the timecode of the displayed frame.
- Mark IN — Displays the clip's playback inpoint as entered during the capture or as trimmed by an automation system. If no inpoint is marked, the text box is empty if in Absolute mode. In Virtual mode, 1 hour is entered.
- Mark OUT — Displays the clip's playback outpoint as entered during the capture or as trimmed by an automation system. If no outpoint is marked, the text box is empty.
- Channel 2 — Is highlighted to indicate when the play channel1 button is lit and channel 1 is selected. This is not a button that selects the channels.
- Channel 3 — Is highlighted to indicate when the play channel 2 button is lit and channel 2 is selected. This is not a button that selects the channels.

To play a clip:

1. Access the AirSpace UI. Press Channel Select button 1 or 2.
2. Type in the name or ID in the Name or Video ID text box.
3. Click one of the following buttons after viewing the clip.
   - Click Unload if you want to clear the Play button window and view a different clip.
   - Click Delete if you want to delete the clip from the internal AirSpeed drive. The text fields in the Play button will also clear.

Clips that have been sent to the workspace are not deleted. You cannot delete a clip that is in the process of being saved on the workspace.

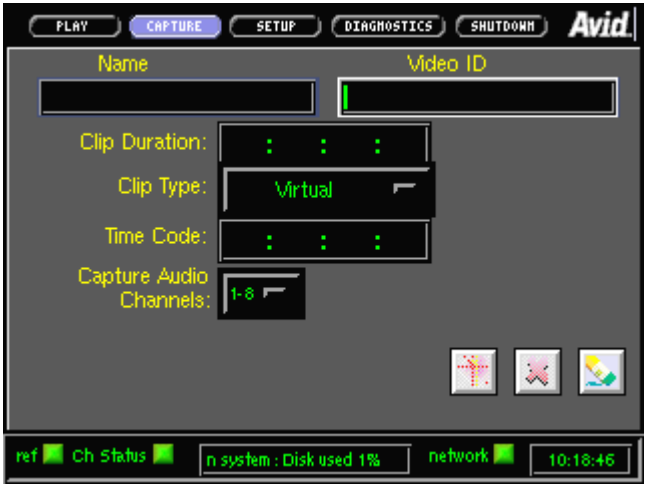
Playing a Clip



Capture Button

The following figure shows the Capture button. Click the Capture button when you want to configure your capture settings. The capture can be controlled both locally using the operational control buttons on the front and by up to two remote control devices and by any number of Pilot applications, all simultaneously. Make sure you to avoid operational conflicts. After you enter the data in this button, click the Create button.

Capture Button Selections



Most of the text boxes in the AirSpeed UI require input from a keyboard. After entering information in a text field, press the Enter key to enter the data and advance to the next field. The Tab key also advances you to the next user input field.

Select the Clip type (Virtual or Absolute mode) first, to avoid data entry loss.

- Name — Type the name you want for the clip while capturing the media. The Name can be the same as the Video ID. Video IDs can be up to eight alphanumeric characters in length. Clip Names can not contain spaces or these characters: *, ?, :, /, and \.

- Video ID — Type the reference identification (ID) you want for the video while capturing media. Pressing enter twice enters the text to the Name field. Video IDs can be up to eight alphanumeric characters in length. Video IDs can not contain spaces or these characters: *, ?, :, /, and \.
- Clip Duration — Type in the length of time you want to capture. This text box allows you to set up closed-ended captures for new clips and displays the playable clip duration for existing clips:
  - If you know when to stop capturing the media, enter the length of time you want to capture. For example, if you know media you want ends in an hour, type 00:01:00:00.
  - Leave this field blank if you are doing a crash record.
- Clip Type — Select the type of media from the pull-down menu. The choices are as follows:
  - Virtual — Captures whatever media is coming in. You would use this selection during a crash record. When a new Video ID is created in Virtual mode, the Clip Duration timecode text box is dimmed, allowing open-ended capture.

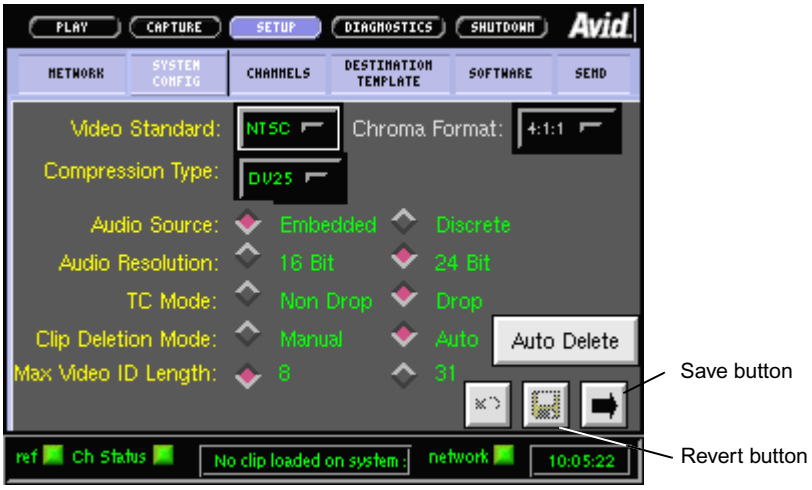
Crash records are only valid when in Virtual mode.

  - Absolute — Captures media for the duration set in the clip duration. When a new Video ID is created in Absolute mode, the Clip Duration timecode text box activates and allows you to type the desired duration of the clip to be captured. After a capture is initiated, it will automatically terminate at this duration (a value greater than 0 must be entered in order to capture).
- Time Code — Displays the current timecode information reflected in the frame when capturing. The internal AirSpeed timecode is used when the media being captured does not have an embedded timecode.
- Capture Audio Channels — Select the number of audio channels you want to capture from the pull-down menu. The choices are as follows:
  - 0
  - 1 – 2
  - 1 – 4
  - 1 – 8

Setup Button

The following figure shows the Setup button. The Setup button contains and six subtabs that divide the settings into groups. Once you enter your settings in a subtab, click the Save button to save and enter the settings. If you make a mistake, click the Revert button to return to the last saved settings. All Setup subtabs are described in Chapter 5.

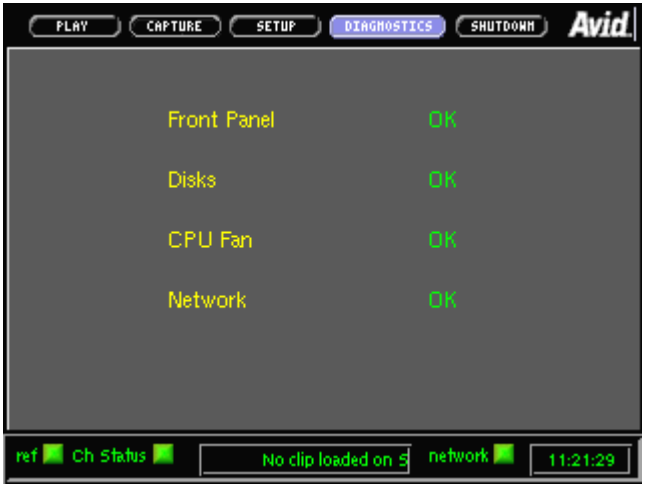
Setup Button Selections



Diagnostic Button

Click the Diagnostic button to display the system diagnostic report. When no problem is detected, the Diagnostic button should look similar to the following illustration.

Diagnostic Button Information



This button allows you to examine the status of the monitored AirSpeed subsystems. Alert conditions are displayed at the bottom of all the windows as dashboard indicators. If a system problem surfaces, a status indicator on the dashboard informs you where the problem resides. For explanation of the dashboard indicators, see “Dashboard” on page 65.

The Front Panel, Disks, and CPU Fan monitoring functions are not implemented in the initial release of AirSpeed. If a the Avid Unity MediaManager or the Avid Unity TransferManager is not available, the missing server will be displayed beside the Network text stating the server is offline.

The SMPTE output connector on the rear of the AirSpeed provides a alarm signal (SMPTE 269M) if the AirSpeed is in an error condition. For the location of the connector and a description of the signal, see “Control Connections” on page 36.

Shutdown Button

Click the Shutdown button to turn off or restart the AirSpeed. The Shutdown button is shown below.

Shutdown Button Selections

- Restart User Interface — Use to restart the software only.
- Restart Entire System — Use to restart both the system and the software.
- Shutdown — Use to completely shutdown. A variety of internal tasks such as file system clean-up will be performed before the operating system shuts down.

When completely turning off the AirSpeed you must wait till the operating system text stops scrolling on the UI monitor before pressing the power switch.

Chapter 5
Configuring the AirSpeed

This chapter provides information on each of the Setup tab parameters within the AirSpeed UI. You can change the AirSpeed configuration settings remotely using the Virtual Network Computing (VNC) application from any client on the Avid Unity Media Network. Use the VNC application to configure the AirSpeed when access to the AirSpeed is not available or when a keyboard and mouse are not attached.

After using the VNC application to remotely change the AirSpeed setting, you must restart the AirSpeed before the changes are implemented. For more information on VNC see, "Virtual Network Computing" on page 129. The following topics are discussed:

- Accessing the Setup Subtabs
- Network Tab
- System Config Tab
- Channels Tab
- Destination Template
- Software Tab
- Send Tab
- Maintenance and Troubleshooting

Prior to proceeding with AirSpeed configuration, ensure that your AirSpeed is installed and connected using the information in Chapter 2.

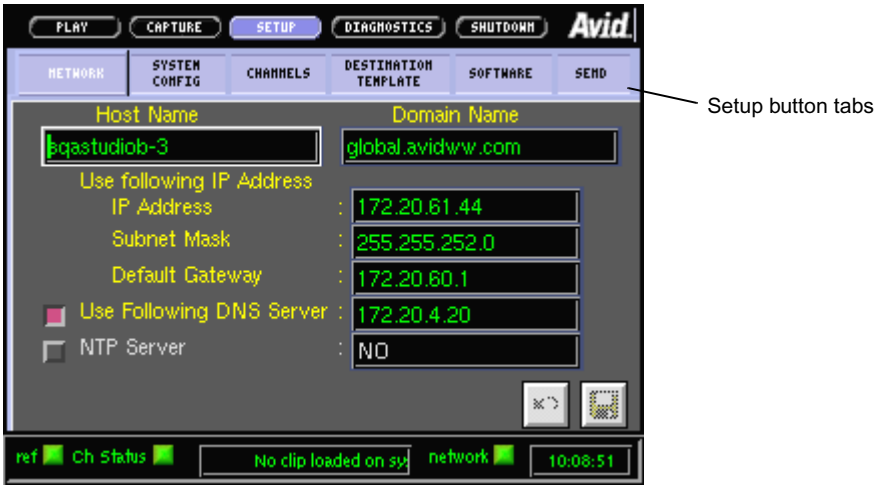
Accessing the Setup Subtabs

The Setup button allows you configure all aspects of the AirSpeed. Accessing this area impacts all of the AirSpeed operations and should only be conducted by qualified personnel.

Changing AirSpeed setup parameters can cause interruption of playout and/or destruction of media on the AirSpeed. However, viewing setup parameters can be done without impacting the AirSpeed. Proceed with caution.

You need a keyboard and mouse connected to the rear of the AirSpeed to select and enter data using the AirSpeed UI, see “Control and Communications Cables” on page 53. Alternatively you can also use the VNC application to access the AirSpeed UI. The following figure shows the Setup button, which is divided into six subtabs.

Setup Button



Setup Button Functions

The Setup Function List consists of six buttons that provide access to the various AirSpeed setup areas. The list remains on window while the right-hand Setup Parameter Section changes accordingly. For each of these buttons, detailed information is covered in the appropriate sections following.

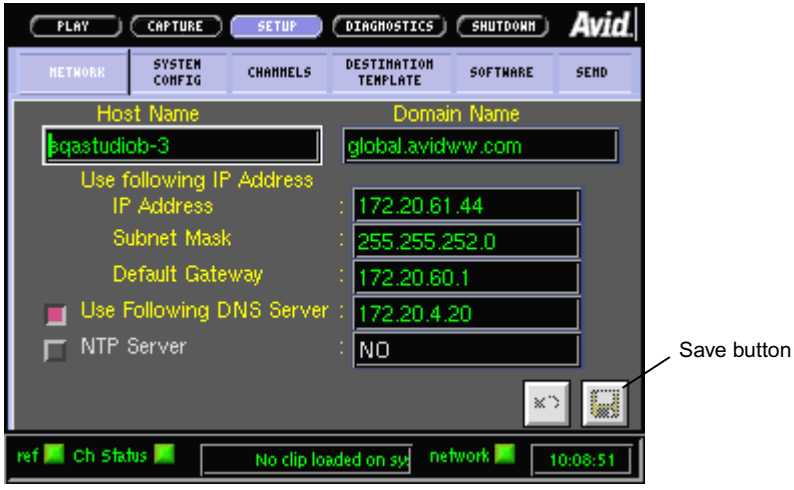
- Click Network to configure the AirSpeed's network parameters.
- Click System Configuration to change the audio and video format.
- Click Channel to configure your audio and video channels.
- Click Destination Template to create capture templates. Multiple templates can be saved.
- Click Software to update AirSpeed software via the network.
- Click Send to identify the TransferManager and MediaManager servers are in you workgroup environment.

Network Tab

The Network configuration tab allows you to set the network configuration parameters and identify your DNS server. All network communication is done through the gigabit Ethernet (Gig E) connection on the rear of AirSpeed.

The following figure shows an example of the Network tab.

Setup Button — Network



Any changes you make to the current network settings will not take effect until you click the Save button and then restart the AirSpeed.

If you are unsure about any network configurations, names, or setup values discussed below, please contact your facility's AirSpeed administrator for technical assistance.

- Host Name — Type the name you want to give the AirSpeed.
- Domain Name — Type the name of the domain for your Avid Unity MediaNetwork (option).
- Use the following IP Address — You are required to provide the following information:
  - IP Address — Enter the IP address you want to assign to the AirSpeed.
  - Subnet Mask — Enter the your subnet mask values.
  - Default Gateway — Enter the address for your network's default gateway (option).
- Use the following DNS Server — Enter the address for your DNS server (option).
- NTP Server — Enter the IP address for your Network Time Protocol (NTP) server (option). The NTP server synchronizes the time on your network and client to a reference time source.

Click Save to save your configuration and enable the network interface. After the network is configured, restart the AirSpeed to enable the changed settings.

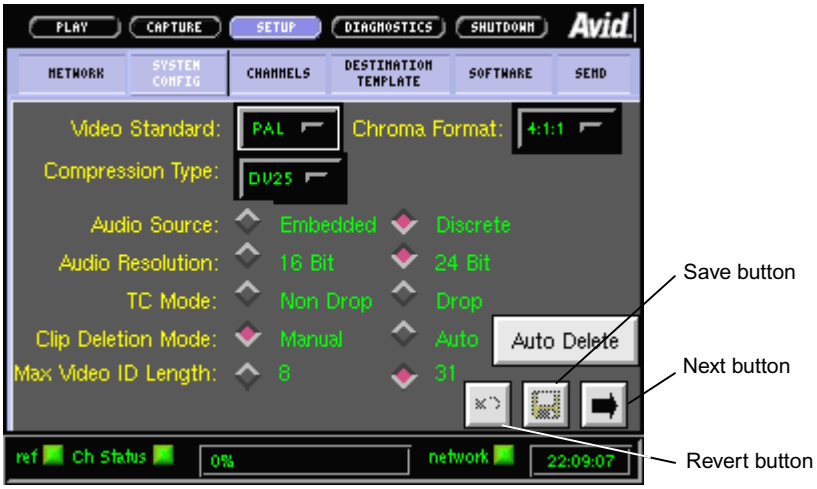
System Config Tab

The System Config (Configuration) tab enables you to select the video standard, video and audio format, and the method for deleting media off of the AirSpeed.

Modifying System Configuration Selections can invalidate media.

The following figure shows an example of the System Config tab.

Setup Button — System Config (First Window)



When you click the Next button a second set of System Config selections become available, see "Setup Button — System Config (Second Window)" on page 81. Click the Previous button to return to the first window of the System Config selections.

The first window of the System Config tab displays the following:

- Video Standard — Select NTSC (525 line, television standard, normally Drop Frame) or select PAL (625 line) to select the video standard.
- Chroma Format — Select either 4:1:1 or 4:2:0 format (chroma and luma ratio) when PAL is selected as the Video Standard with a DV 25 Compression Type. This option is not available when you have NTSC selected as the Video Standard.
- Compression Type — Select DV 25 to maximize the capturing capacity of your AirSpeed, DV 50 to obtain the highest quality video at half the capacity, or IMX 50 for MPEG i-frame-only compression.

Changing the media format will alter the available capture time. For example, if you change from DV 25 to DV 50, your AirSpeed's available capturing time will be cut roughly in half.

- Audio Source — Select the appropriate Audio Source button to choose whether you want the audio input to be embedded or discrete:
  - Discrete — assigns the eight channels of audio to be recorded from the AES digital inputs (AES 1/2 and AES 3/4 found on the Break Out Panel).
  - Embedded — assigns up to eight channels of audio to be recorded from data extracted from the horizontal ancillary data embedded in the SDI video stream.
- Audio Resolution — Select if you want to capture at 16- or 24-bit audio:
  - 16 bit — for normal DV media compatibility.
  - 24 bit — for ultimate audio quality or Dolby E compatibility.

24 bit is required to operate with Dolby E signals, while 16 bit is adequate to support Dolby AC-3.

- TC Mode — Select whether you want Drop or Non-Drop frames:

Do not select Drop Frame if you are using PAL.

  - Drop — is short for Drop Frame and puts the AirSpeed into Drop Frame mode (only in NTSC format).
  - Non Drop — is short for Non Drop Frame and puts the AirSpeed into Non Drop Frame mode.
- Clip Deletion Mode — Select whether you want to manually or automatically delete media off of your internal drives:
  - Manual — lets you delete the media off of the AirSpeed internal drives when you determine appropriate.
  - Auto — allows AirSpeed to automatically delete media when the internal drives are getting filled (set the percentage using the Auto Delete button).
- Auto Delete — When Auto is selected in the Clip Deletion Mode, click the Auto Delete button to set a high and a low percentage for deleting media. When media has filled the internal storage capacity to the high percentage setting (percentage of storage used on the internal drives), media is deleted until it reaches the low percentage setting.

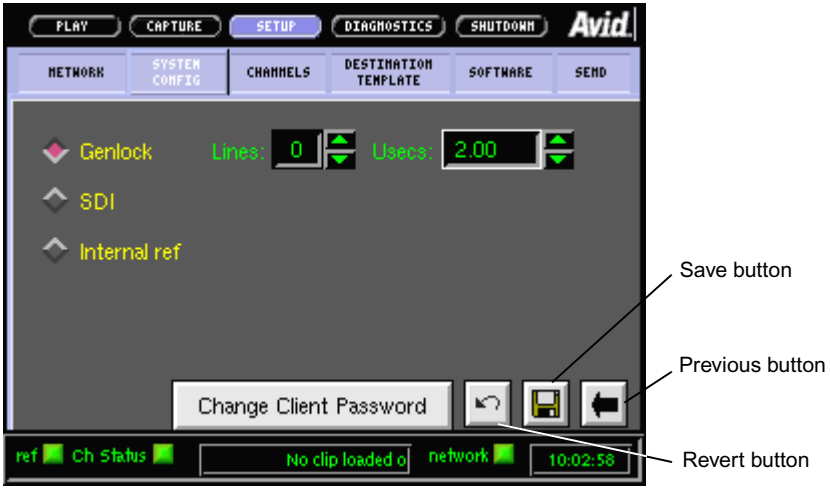
- Maximum Video ID Length — Select the maximum number of characters allowed for the video ID names:
  - 8 — Maximum number of characters supported with VDCP. The VDCP selection is under the Remote Control Protocol, see the "Channels Tab" on page 84
  - 31 — Maximum length of characters supported in Avid workgroups.

All saved Destination Templates are erased when changing the Maximum Video ID Length setting.

Click Save to save your configuration and enable the video mode settings, or Revert to cancel any changes and return to the previous settings. After the settings are saved, restart the AirSpeed to enable the new settings.

When you click the Next button a second set of system configuration selections become available see "Setup Button — System Config (First Window)" on page 79. Click the Previous button to return to the first System Config selections.

Setup Button — System Config (Second Window)



The selections in this window allow you to adjust the SDI output timing.

The second window of the System Config tab displays the following:

- Genlock — Locks the video output signal timing to the analog reference input signal provided to the rear panel connector.
  - Lines — Allows the video timing to be advanced 4 lines or retarded 5 lines vertically relative to the genlock selected source.
  - µsecs (Microseconds) — Allows the video timing to be retarded or advanced relative to the genlock selected source horizontal timing.
- SDI — Locks the video output signal timing to the SDI video input signal provided to the rear panel connector.
- Internal ref — Allow the internal system reference generator to provide the output signal timing.
- Change Client Password — Click the Change Client Password button to set a password for accessing the AirSpeed through Avid Pilot or Avid FlightPlan.

Avid Pilot, Avid FlightPlan, and VNC Password Requirements

When you change the default or the existing password, you must meet the following requirements. The password must include:

- 6 to 12 characters in length
- 4 distinct characters

For example, these passwords will work:

- `AirSpeed`
- `StudioASp4`

For example, these passwords will *not* work:

- `Air4`
- `aaa44AS`

Setting Passwords to Access AirSpeed

When you attempt to log into AirSpeed from the Avid Pilot, the Avid FlightPlan, or the Virtual Network Computing (VNC) applications, you are prompted for a password. A password is required even if you have not set one. The default password for Avid Pilot and Avid FlightPlan is **`avid123`**. The default password for VNC is **`mars`**. You cannot connect to the AirSpeed from

the Avid Pilot, Avid FlightPlan, and VNC clients without entering a password. For more information on VNC, see “Virtual Network Computing” on page 129.

The default password for VNC is mars but, it does not follow the password requirements previously described. Once the default VNC password is changed, you cannot return to the default password of mars.

To set or change the password:

1. Click Change Client Password in the Setup > System Config (second window).

Client Password Dialog Box

2. Select Pilot, FlightPlan, or VNC from the Select Client menu.
3. Type your password in the Password text box.
4. Re-type the password in the Confirm password text box.
5. Click Save to save the new password, or Cancel to not make any changes and return to the previous settings.

   The new password will be required next time you log onto this AirSpeed with Avid Pilot, Avid FlightPlan, or VNC.

After you save the new password, the change takes effect immediately. You do not need to restart the AirSpeed or the AirSpeed UI before the new password is enabled.

Channels Tab

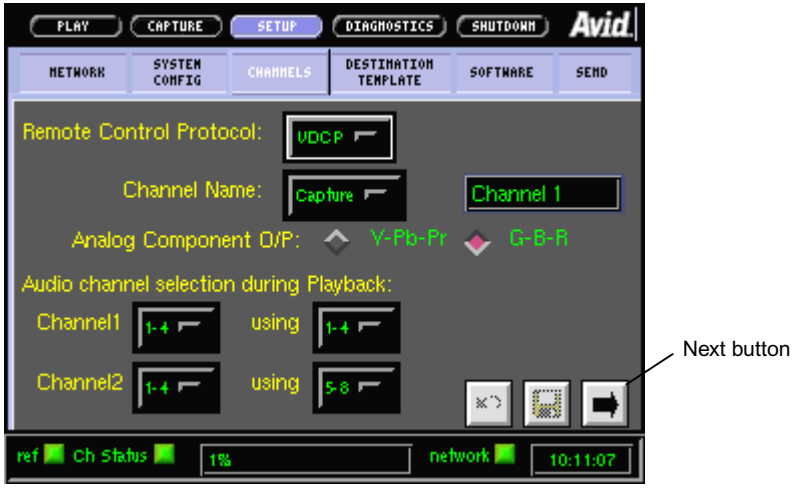
The Channels tab allows you to configure and rename individual channels. You can select the characteristics of your analog component video output and the audio channels you want to output.

After clicking the next button, other settings allow you to adjust the channel's VITC input (or output) lines and the chunking for capturing.

Channel configuration can be configured independently, with variations appropriate to primary or secondary channel features.

The following figure shows an example of the Channels tab.

Setup Button — Channels (First Window)



When you click the Next button a second set of channel selections become available, see "Setup Button — Channels (Second Window)" on page 86. Click the Previous button to return to the first window of the Channel selections.

The first window of the Channel tab displays the following:

- Remote Control Protocol — This pull down menu allows you to control the AirSpeed through a remote controller. AirSpeed supports the following remote controller protocols:

- None — Disables any remote control protocol. All AirSpeed functions are controlled through the AirSpeed UI and controls.
- VDCP — This video disk control protocol (VDCP) commonly referred to as Louth, can control the AirSpeed through the serial RS-422 remote connector.
- Sony — Sony RS-422 VTR protocol (currently not supported.

• Channel Name menu — This pull down menu allows you to select a channel that you have created.

  The default names map to the following functions:

  - Capture — Capture on Channel 1
  - Play 1 — Play on Channel 2 (Channel Select button 1)
  - Play 2 — Play on Channel 3 (Channel Select button 2)

You cannot change the channel name. All of the remote applications that use must match the Channel 1, 2, and 3 names.

• Analog Component O/P — Select whether you want Y, Pb, Pr or G, B R characteristics for your video component output.

• Audio Channel Selection During Playback — These pull down menus allow you to select how many audio channels you want to output. The selections are:

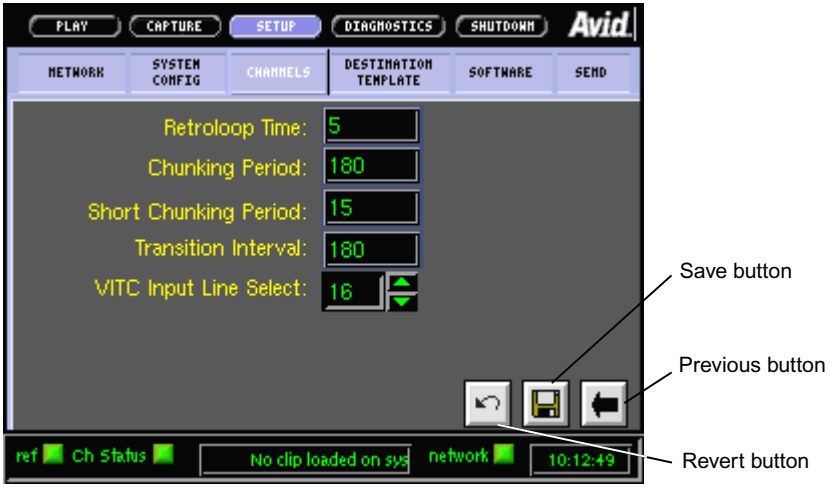
  - 0
  - 1 – 4
  - 5 – 8
  - 1 – 8

  You can select a maximum of eight channels total, so if you select 1 – 4 channels of audio output on one playback channel, you have 0 or 5 – 8 channels available for the other playback channel. However, if you select 1 – 8 audio outputs on one of the playback channels, you cannot select any audio output on the other playback channel.

When you click the Next button a second set of Channel selections become available see “Setup Button — Channels (First Window)” on page 84. Click the Previous button to return to the first Channel selections.

Enter the time for the Retroloop text boxes in seconds.

Setup Button — Channels (Second Window)



The second window of the Channel tab displays the following:

- Retroloop Time — This numeric text box allows you to enter the amount of time (in seconds) you want to capture before an unknown event occurs. You must select a Retroloop Time between 60 seconds and 14280 seconds (approximately 4 hours).

  AirSpeed continuously captures media in a loop, using this predetermined amount of time. Once the event happens, you trigger a normal Record mode and the capture continues until stopped. The end result is a clip that contains material before and after the event.

  The maximum allowed value cannot exceed the total amount of disk space on the AirSpeed internal drives. When the internal drives are empty, the following table provides the approximate seconds available per video and audio format.

The number of channels selected for the capture does not affect the predetermined amount of space. AirSpeed assumes eight tracks of audio are being captured in Retroloop mode.

Internal Drive Capture Time per Video and Audio Format

Resolution	16-bit Audio	24-bit Audio
DV 25	28620 seconds (7 hours 57 minutes)	26820 seconds (7 hours 27 minutes)
DV 50	14280 seconds (3 hours 58 minutes)	13380 seconds (3 hours 43 minutes)
IMX 50 (MPEG 50)	18000 seconds (5 hours 05 minutes)	17160 seconds (4 hours 46 minutes)

For a description of Retroloop, see "Capture Modes" on page 19. For information on using Retroloop mode, see "Retroloop Mode" on page 109.

- Chunking Period — This is the period of time (in seconds) the where captured media is made available for transfer from the AirSpeed to the workspace. Media is transferred in chunks specified at this setting after the media has reached the Transition Interval.

  For example, if the Chunking Period is set to 3 minutes, Transition Interval to 1 minute, and Short Chunking period to 15 seconds. Media checks in at 15, 30, 45, 60, 240, 420, etc. For more information, see "Capturing with Chunking (Shared Volume Segmentation)" on page 20.

- Short Chunking Period — The AirSpeed captures short chunks of media building up to the Transition Interval. This setting allows media to be available seconds after you have started the capture. See the example in the Chunking Period description.

- Transition Interval — The transition time specified (in seconds) is the point where the Short Chunking Period switches to the Chunking period. See the example in the Chunking Period description.

Minimum and Maximum Chunking for DV 25

Chunking Setting	Minimum	Maximum
Chunking Period	3 minutes	9 minutes
Transition Interval	1 minute	3 minutes
Short Chunking Period	15 seconds	3 minute

Minimum and Maximum Chunking for DV 50 and MPEG 50 (IMX 50)

Chunking Setting	Minimum	Maximum
Chunking Period	3 minutes	3 minutes
Transition Interval	1 minute	3 minutes
Short Chunking Period	15 seconds	3 minutes

- VITC Input Line Select — The VITC Input Line Select control determines the line on which to read the VITC time code. Click the Up/Down buttons to select the line where VITC is located on the input. The selections are 12 to 19.

Click Save to save your channel settings, or Revert to cancel any changes and return to the previous settings. After the settings are saved, restart the AirSpeed to enable the changed settings.

Destination Template

The Destination Template tab is used to quickly select capture formats and settings you use on a regular basis. If you normally have several common media formats that you capture on specific workspaces, save these settings as a template. When you want to capture a format, select your saved template instead of configuring the settings again.

The following figure shows an example of the Destination Template tab.

Setup Button — Destination Template

The Destination Template tab displays the following:

- Template Name — The information displayed is this setting is the currently loaded template.
  - To load a template, select a template from the Stored Template list, then click Activate.
  - To create a new template, Select template from the Stored Template list, then click Edit, make your changes, give the template a new name and click Save. The new template will be added toe the Stored Template list.
- Video ID — Displays the reference identification (ID) given to the clip. Type in the name you want for the clip. When multiple clips are made, the base name stays the same and a 001, 002, 003, etc. is added to the name.
- Name — Displays a second reference name for the clip. Type in a second name you want for the clip.
- Tape Name — Displays the name given to the tape. Type in the name you want for the tape.
- Stored Template list — When you have created and saved one or more templates, they are listed in this scroll box. Select a saved template to load or delete it.

- Workspace — Type in the name of the workspace where you want the media to be stored. The workspace must already exist in the Avid MediaNetwork environment.

When typing the Workspace name in the text box, be aware that this entry is case sensitive. Also, do not use the underscore (_). It is an illegal character.

- Check In Method — Captured media can be associated with either a Project or Catalog. Depending on the method you select, the following options are available:

The Project, Bin, or Catalog names do not have to pre-exist before you type in the name. Typing in a new name will create the project and bin.

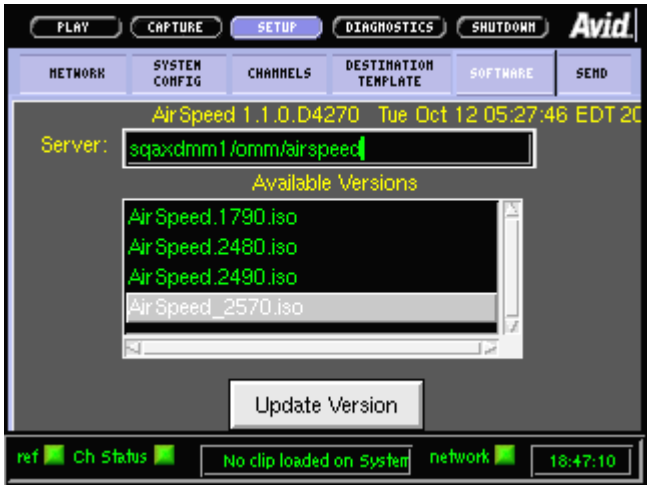
  - Project Name — Type in the name of the project that you want used with the media.
  - Bin Name — Type in the name of the bin where the clips are stored.
  - Catalog Name — Type in the name of the project where you want the Bin and clips saved.

- Activate button — This button opens an existing template that you have previously saved. Select template from the Stored Template list, then click Activate. The selected template is loaded.
- Edit button — This button allows you to make changes to an existing template. Select template from the Stored Template list, then click Edit. Make the changes and click the Save button to save the template changes.
- Save button — This button saves changes you have made to an existing template or a newly created template. Create a new template or edit an existing one, and click the Save button to save the template.
- Delete button — This button deletes an existing template you have previously saved. Select the template from the Stored Template list, then click Delete.

Software Tab

The Software tab is used to update or retrieve a pervious version of AirSpeed software via the network. The following figure shows an example Software tab.

Setup Button — Software



The Software tab displays the following:

- Server — This text box is used to type the URL to a web page where the AirSpeed ISO images are located.
- Available Versions — List the available versions of software in the location designated by the Server text box.
- Update Version button — Loads a new or earlier version of AirSpeed software from a network client.

Network Setup for the Software

The AirSpeed software upgrade process requires an .iso file on the network which can be reached via a Web browser. Since the Avid Unity MediaManager runs a Web server, Avid recommends you use your MediaManager to provide such a directory.

Before you can update your AirSpeed software through the network using the AirSpeed UI, you need to create a Web server directory on your Avid Unity MediaManager server.

To set up a web server directory on your MediaManager:

1. On the MediaManager desktop, right-click My Computer and select Manage.
2. In the Computer Management window, expand Services and Applications > Internet Information Services > Default Web Site.
3. Right-click the OMM object and select Properties.
4. In the Properties dialog, check the Directory Browsing checkbox under Local Path.
5. Note the directory path shown in the Local Path box.
6. Click OK.

   This allows you to browse to the c:/omm directory level and below.
7. In Windows Explorer, navigate to the directory shown in the Local Path box, noted above. (This is typically c:/omm.)
8. In the omm directory, create a directory named “airspeed.”
9. Copy the AirSpeed_*nn*.iso file into the airspeed directory.

If you rename the AirSpeed .iso file, you must follow the naming requirements listed in the “Software Naming Convention” on page 92.

Software Naming Convention

When you store the AirSpeed software on the MediaManager server for AirSpeed upgrades, you must follow strict naming conventions. The Setup > Software tab in the AirSpeed UI looks for a software version similar to the following:

```
AirSpeed_1977.iso
```

The character between the word “AirSpeed” and the “.iso” extension must be a number, a period, an underscore, or a dash. The word “AirSpeed” and the extension must not be changed.

For example, these naming formats will work:

- `AirSpeed_1977.iso`
- `AirSpeed.1977.iso`
- `AirSpeed.1977-1.iso`

For example, these naming formats will *not* work:

- `AirSpeed.1977_old.iso`
- `AirSpeed.1977old.iso`
- `AirSpeed.1977a.iso`
- `ASpeed_1977.iso`

Loading Software

To load new or earlier versions of AirSpeed software:

1. Make sure your AirSpeed is on the Avid Unity MediaNetwork.
2. Copy the update software to a client in the network. Avid recommends you store your AirSpeed ISO images in the following location on the MediaManager server:

   MediaManager_name`/omm/airspeed/`
3. Select Setup > Software.
4. In the Server text box, type in a URL to a web page where the list of AirSpeed ISO images are located.

   For example: *`MediaManager_name`*`/omm/airspeed/`
5. Select the AirSpeed ISO image from the Available Versions list in which you want to load.
6. Click Update Version.
7. Select the appropriate dialog boxes. When the upgrade is complete, the AirSpeed will restart.

Do not interrupt the AirSpeed while the software is being updated.

Multiple AirSpeeds can be updating the software from the same MediaManager file at the same time.

Send Tab

The Send tab is used to select the destination for the media on the Avid Unity MediaNetwork. It also sets the communication between the other servers on the network. The following figure shows an example Send tab window.

Setup Button — Send

The Send tab displays the following:

- MediaManager — Configures the AirSpeed as a MediaManager client.
  - MediaManager — Enter the MediaManager IP address or name.
  - Port Server — Enter the Port Server IP address or name.

If you are not using a DNS server you must enter an IP address. To identify the DNS server, see "Network Tab" on page 77.

Maintenance and Troubleshooting

The AirSpeed UI provides status indicators to alert you to detected network problems. For information on what is detected and the meaning of the colors displayed in the status indicators, see "Dashboard" on page 65

Power-On Self-Test

When you turn on the AirSpeed, it performs an internal self-test. A successful startup of the AirSpeed indicates that the internal boards are working.

The power-on self-test does not test the external interface connections.

Power Cycling

To achieve the best performance from your AirSpeed, Avid recommends that you power cycle your AirSpeed once a week (7 days).

This maintenance procedure is time flexible and should be performed when it is convenient to your workflow. For instructions on shutting down, see "Power Up, Power Down" on page 56.

Network Test

You can ping the AirSpeed to see if the AirSpeed is seen by the network.

To ping your AirSpeed:

A command prompt window will open and display the ping command and a response, if the AirSpeed is seen by the network.

To verify communication from a client system (such as a NewsCutter) which is on the Avid Unity network, obtain the IP address of the target AirSpeed.

To ping AirSpeed from a client system on the Avid Unity network:

1. Click Start > Run.
2. Type the **`ping`** command and the **`IP address`** of your AirSpeed. For example:

   `ping` *`192.168.0.1`*

   If the ping succeeds, a series of responses appears, for example:

   8 packets transmitted, 8 packets received, 0% packet loss
3. Close the command prompt window when done.

To ping a target AirSpeed from another AirSpeed on the network:

1. On the AirSpeed, simultaneously press **Ctrl+Alt+F1**.
2. At the login prompt type:
   - login — **maint**
   - password — **mars**
3. Type `ping <AirSpeed I/P address>`.

   If the ping succeeds, a series of responses appears, for example:

   8 packets transmitted, 8 packets received, 0% packet loss
4. Type **Ctrl+C** to terminate the ping.
5. Simultaneously press **Ctrl+Alt+F3** to return to AirSpeed UI.

Message Log

Up to five messages log files are store on the internal drive and can be reviewed on the AirSpeed display. The log file names are runa, runa.0, runa.1, etc. The latest file is always saved as runa, the oldest file runa4 is deleted when a new file is created.

To view the error log:

1. On the AirSpeed, simultaneously press **Ctrl+Alt+F1**.
2. At the login prompt type:
   - login — **maint**
   - password — **mars**
3. Type the following on the command line to view the log files.

   `cp /var/tmp`
4. Type the following to view the last log file.

   `cp /var/tmp/runa`
5. Simultaneously press **Ctrl+Alt+F3** to return to AirSpeed UI.

Accessing the Knowledge Base

The Avid Customer Support Knowledge Base (Knowledge Base) provides additional information that is frequently updated.

To access the Knowledge Base:

1. Go to www.avid.com.
2. Click Support, and then click Knowledge Base.
3. Under the Avid Knowledge Base and Online Support heading, click Documentation.
4. Choose your product line from the Avid Product menu.
5. Search for the information you need.

Chapter 6
AirSpeed Operations

This chapter provides operating instructions and button information for the AirSpeed. The following topics are discussed:

- Power-On Functions
- AirSpeed Startup Defaults
- Button and Wheel Functions
- Operational Control Buttons
- Jog Wheel
- Shuttle Wheel
- Mark IN Button
- Mark OUT Button
- Retroloop Mode
- Deleting Clips
- Timecode Modes

Power-On Functions

The AirSpeed does not require any input to fully boot. To turn on the AirSpeed from the powered down state use these guidelines:

- Observations during the power-on self test (POST):
  - All front panel lights come on for a period. This can be used to detect if lights are burned out or defective.
  - A splash screen appears on the UI indicating that the AirSpeed is booting and a progress bar displayed.
- If a keyboard is connected you can press the ESC (escape) key when the splash screen is displayed to show the AirSpeed console with boot messages.

In the event a hardware failure is detected during boot, an error message is displayed in the UI. The following are the messages and their meaning:

- System disk corrupt — A problem was detected with one of the internal drives. The boot process will stop.
- Disk 3 not functional — A problem was detected with disk drive number 3. The boot process will stop.
- UI damaged and not operable — A problem was detected with the user interface (UI) circuit. The boot process will continue to boot up the AirSpeed although you might not be able to view the built-in UI and playback monitor.
- System memory is damaged or missing — A problem was detected with the internal memory. The boot process will stop.
- CPU fan non functional — A problem was detected with internal processor fan. The boot process will continue.
- Chassis fan non functional — A problem was detected with internal AirSpeed fan. The boot process will continue.

AirSpeed Startup Defaults

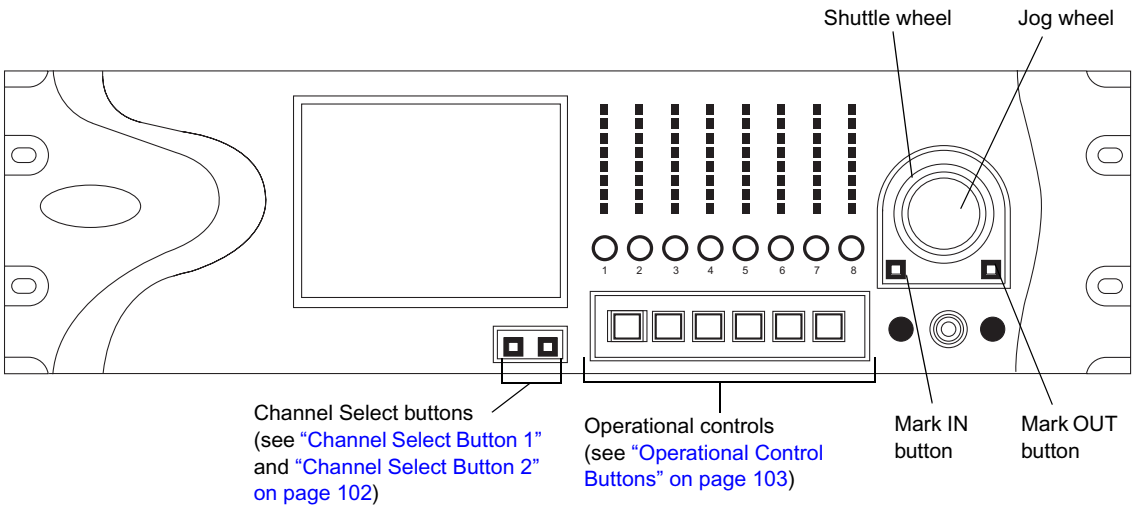
After the AirSpeed has successfully started the indicators are as follows:

- 1 button — On
- 2 button — Off
- Stop, Play, Record, Rewind, Fast Forward, and Locator buttons — off
- No clips are loaded
- UI monitor — Displays the Play 1 button with the cursor is on the video ID field

Button and Wheel Functions

The behavior of the AirSpeed buttons are described in this section. The following figure identifies the location of these items.

Front Panel Buttons and Wheels



Channel Select Button 1

When button 1 is lit, pressing 1 cycles you through three screens relevant to channel one. The screen are:

- Capture mode (channel 1) — settings for capturing media
- Play mode (channel 1) — settings for play out on channel 1
- Video — view media that is being captured or playing on channel 1

When button 1 is not lit, then selected:

- The state of the channel l buttons are displayed: (Play, Stop, Fast Forward and Rewind).

  For example, press Play on channel 1 then press 2 and start a playing a clip on the channel 2. Then press Rewind on channel 2 and switch back to channel 1 by pressing 1. The Play will be lit if the clip is still playing.
- You are returned to the same display you had on channel 1 prior to switching to the channel 2.

  For example, if you are playing video on channel 1 (1 lit), press 2 (2 lit) You'll see the state of channel 2, then press 1 again (1 lit) and you are returned to the video playing on channel 1.
- The the channel 2 status is displayed.

  For example, you in channel 2 (2 is lit) and you press Play and the loaded clip plays. Then press 1 to switch to channel 1, "Ch2 play" is displayed

Channel Select Button 2

When AirSpeed is currently capturing, pressing 2 has no function. When 2 is lit, pressing 2 cycles you through two screens relevant to channel two. The screen are:

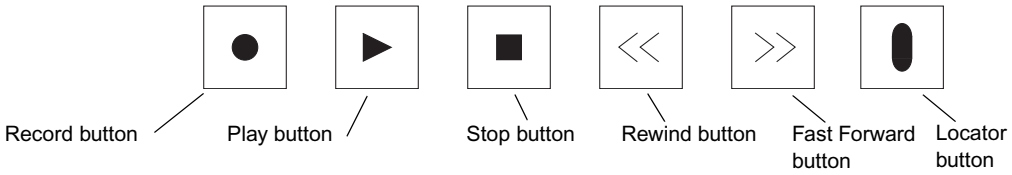
- Play (channel 2) — settings for play out on channel 2
- Video — view media that is playing on channel 2

When B2 is not lit, then selected:

- The state of the channel 2 buttons are displayed: (Play, Stop, Fast Forward and Rewind).
- You are returned to the same display you had on channel 2 prior to switching to channel 1.
- The channel 1 status is displayed.

Operational Control Buttons

The following figure shows the operational control buttons. These buttons have a backlight to help determine the capturing state of the AirSpeed. The following sections lists the functions of these buttons.



Operational Control Buttons

Play Button

When the Play button is lit:

- Pressing Play again has no function.
- Pressing Record has no function.
- Pressing Stop, stops the current clip from playing (see “Stop Button” on page 106).
- Pressing Fast Forward starts a fast advance of the media (see “Fast Forward Button” on page 105).
- Pressing Rewind starts a rewind (see “Rewind Button” on page 105).
- Turning the Jog or Shuttle stops the Play and begins the Jog or Shuttle (see “Jog Wheel” on page 107 and “Shuttle Wheel” on page 108).
- Pressing Mark IN sets a Mark IN point in the media (see “Mark IN Button” on page 108).
- Pressing Mark OUT sets a Mark OUT point in the media (see “Mark OUT Button” on page 109).
- Pressing the Locator button places a locator in the frame being played (see “Locator Button” on page 107).
- When a clip is loaded on a channel (1 or 2), pressing Play begins a the play operation.
- If you press Play and there is no clip loaded for the selected channel, “No clip loaded” is displayed in the UI dash board.

Record Button

When the AirSpeed is capturing, the red Record button is lit.

- Pressing button 2 has no function.
- Pressing button 1, functions as described in the “Channel Select Button 1” on page 102.
- Pressing Record again, play, Rewind, Fast Forward, Jog or Shuttle has no function.
- Pressing Stop, stops the current capture and displays the current clip loaded (see “Stop Button” on page 106).
- Pressing Mark IN sets a Mark IN point in the media being captured (see “Mark IN Button” on page 108).
- Pressing Mark OUT sets a Mark OUT point in the media being captured (see “Mark OUT Button” on page 109).
- Pressing Locator places a locator in the frame being captured (see “Locator Button” on page 107).
- When a clip is playing on either channel, pressing Record has no function. The UI dash board displays “System is in Play mode.” You must stop playing media before you can capture.
- Each time a capture is initiated, the values from the selected template are used. If no template is selected when a capture is started using the default template.
- If Record is pressed and no clip is queued, and no play operation is active, a capture will begin regardless of what is on the display.
- If play channel 2 button is lit when a capture is started, 2 turns off and 1 lights.
- A capture cannot start if in play mode with a clip is loaded.

  The UI and playback monitor displays the media mode of the current session being captured.

Fast Forward Button

AirSpeed is Fast Forwarding when the button is lit. Regardless of what is on the UI monitor (video, Play 1, Play 2, or Record) when Fast Forward is pressed, the selected channel (1 or 2) fast forwards the loaded clip.

- If the AirSpeed is capturing, pressing Fast Forward has no function.
- If the AirSpeed is playing, pressing Fast Forward turns off and Play mode and begins a Fast Forward.
- If the AirSpeed is idle and there is a clip loaded on the selected channel, pressing Fast Forward begins a Fast Forward.
- If there is no clip loaded when Fast Forward is pressed, no function is purformed.
- If Fast Forward is lit (performing a fast forward):
  - Pressing Fast Forward again has no function.
  - Pressing the Rewind button turns Fast Forward off and begins a rewind.
  - Pressing Play turns Fast Forward off and starts Play from where Fast Forward stopped.
  - Pressing Stop, stops the Fast Forward.
  - Using Jog or Shuttle stops the Fast Forward and begins the jog or shuttle operation.
  - Pressing Mark IN has no function.
  - Pressing Mark OUT has no function.
  - Pressing Locator has no function.
  - Pressing button 1 or 2 operates as described in “Channel Select Button 1” on page 102 and “Channel Select Button 2” on page 102.

Rewind Button

Performs the same actions as the Fast Forward button but in the reverse dirrection.

Stop Button

When a playing clip or capture is stopped, the Stop button is lit.

- If the AirSpeed is idle and there is no clip loaded on the selected channel, the Stop button is not lit.
- If the AirSpeed is idle and there is a clip loaded on the selected channel the Stop button is lit.
- If the AirSpeed is in Retroloop mode (Fast Forward, Rewind, and Record lit) and Stop is pressed, the Record light turns off and Retroloop mode ends. The Stop light turns off and the retroloop is cleared.
- When Stop is lit:
  - Pressing Stop twice unloads the loaded clip and turns the Stop light off.
  - Pressing Stop once has no function.
  - Pressing Rewind in Play mode, rewinds the loaded clip.
  - Pressing Fast Forward Play mode, fast forwards the loaded clip.
  - Pressing Play, plays the loaded clip.
  - Pressing Fast Forward and Rewind together will not start retroloop mode because a clip is loaded.
  - Pressing Record does nothing.
  - Turning the Jog or Shuttle performs jog and shuttle operations.
  - Pressing Mark IN or Mark OUT places a Mark IN or Mark OUT point in the clip.
- Pressing Stop when Play, Rewind, Fast Forward, or Record are lit, the function is stopped.

Locator Button

The Locator button functions as follows:

- If AirSpeed is idle and no clip loaded on the selected channel (Stop not lit), the Locator has no function.
- If AirSpeed is in Play or Capture mode with a clip loaded, pressing locator adds a locator to the clip.
- If AirSpeed is in Retroloop mode when a Locator is pressed, the AirSpeed enters Capture mode and a locator is added.
- Pressing Locator while Fast Forward, Rewind, Shuttle, or Jog is active (Play mode functions), no function is performed.
- Pressing Locator places a locator whenever permitted, regardless of what is on the display.

Jog Wheel

The Jog wheel functions as follows:

- If AirSpeed is idle and no clip loaded on the selected channel (Stop is not lit), Jog has no function.
- If the AirSpeed is idle and a clip is loaded on the selected channel (Stop is lit), turn the Jog wheel to advance or rewind the current clip. The timecode appears on the display. The Stop button remains lit. A “J” is shown on the display.
- If AirSpeed is performing a Play, Fast Forward, or Rewind and the Jog is turned, AirSpeed will first Stop (Stop lit) then begin a Jog.
- While capturing, turning the Jog wheel has no function.
- Jog continues if any button on the front panel is pressed when AirSpeed jogging.

Shuttle Wheel

The Shuttle wheel functions as follows:

- If the AirSpeed is idle and no clip loaded on the selected channel (Stop is not lit), the shuttle knob has no function.
- If capturing, turning the shuttle wheel has no function.
- If the AirSpeed is idle and a clip is loaded on the selected channel (Stop is lit), turn the shuttle wheel to advance or rewind the current clip. The timecode appears on the display. The Stop button should remains on. A Shuttle direction indicator is shown on the display.
- If AirSpeed performing a Play, Fast Forward, or Rewind and the Shuttle is turned, AirSpeed will first Stop (Stop lit) then begin a Shuttle.
- Shuttle continues if button 1, 2, Play, Record, Rewind, Fast Forward, Stop, Mark IN, Mark OUT or Locator, is pressed when AirSpeed is shuttling.

Mark IN Button

The Mark IN button functions as follows:

- If the AirSpeed is idle and no clip is loaded on the selected channel (Stop button is not lit), pressing Mark IN has no function.
- When in Play mode and Mark IN is pressed, a Mark IN point is placed on the clip. The timecode appears on the display.
- When in Capture mode and Mark IN is pressed, a Mark IN point is placed on a subclip. The timecode appears on the display.
- When in Fast Forward, Rewind, or Jog modes no function is performed when Mark IN is pressed.
- Clear the Mark IN and Mark OUT points by simultaneously pressing and holding Mark IN and Mark OUT for a couple seconds.
- If a clip is loaded with a Mark IN point, the clip plays from the Mark IN point forward to the Mark OUT point.

Mark OUT Button

Similar functionality as the Mark IN button with exception to Retroloop mode (see “Retroloop Mode” on page 109). Mark OUT has no function in Retroloop mode.

- If the AirSpeed is idle and no clip loaded on the selected channel (Stop button is not lit), pressing Mark OUT has no function.
- If the AirSpeed is idle and a clip is loaded on the selected channel (Stop is lit), pressing Mark OUT functions as follows:
  - If there is no Mark IN point, no function is performed.
  - If there is a valid Mark IN point, a Mark OUT point is indicated on the display with the same timecode as the Mark IN.
- When in Play mode and you press Mark OUT without a Mark IN point, no function is performed.
- When in Capture mode and pressing Mark OUT functions as follows:
  - If there is no Mark IN point, no function is performed.
  - If there is a valid Mark IN point, a Mark OUT point is indicated on the display with the correct timecode and a subclip is created.
- When in Fast Forward, Rewind, or Jog modes no function is performed when Mark OUT is pressed.
- Clear the Mark IN and Mark OUT points by simultaneously pressing and holding Mark IN and Mark OUT for a couple seconds.
- If a clip is loaded with a Mark IN point, the clip plays from the Mark IN point forward to the Mark OUT point.
- When in Retroloop mode, pressing Mark OUT has no function.

Retroloop Mode

When Record and Rewind buttons are lit, AirSpeed is in Retroloop mode. You cannot enter retroloop mode if a clip is loaded.

To enter Retroloop mode:

- Press the Fast Forward and Rewind buttons simultaneously.

To start the capture in Retroloop mode:

- Press Record to begin a normal capture preserving the retroloop media.
- Press Locator to begin a normal capture preserving the retroloop media and adding the Locator.

To exit Retroloop mode:

- Press the Stop button.

When AirSpeed is in Play, Record, Rewind, or Fast Forward modes, Retroloop cannot be initiated. While in Retroloop mode:

- Pressing Play has no function.
- Pressing Stop ends the Retroloop mode and enters Stop mode with a clip loaded (Stop lit). See "Stop Button" on page 106.
- Pressing 1 functions as described in the "Channel Select Button 1" on page 102.
- Pressing 2 has no function.
- Pressing Fast Forward has no function.
- Pressing Rewind has no function.
- Pressing Mark OUT has no function.
- Using the Jog or Shuttle has no function.

Deleting Clips

You can manually delete clips from the AirSpeed UI.

You can also delete clips from the FlightPlan application, see the FlightPlan Help for more information.

Auto delete is not available when playing out media, you must manually delete the media when you are finished with it. Delete the play out media using the FlightPlan or AirSpeed CountDown applications.

To delete clips in the Play button:

1. Click the Play button in the AirSpeed UI.
2. In the Video ID text box, enter the ID for the clip that you want to delete. Press Enter to accept.

3. Click the Delete button to display the Delete Clip dialog box.
4. Click Yes to confirm the delete request.

To delete clips in the Capture button:

1. Click the Capture button in the AirSpeed UI.
2. In the Video ID text box, enter the ID for the clip that you want to delete. Press Enter to accept.
3. Click the Delete button to display the Delete Clip dialog box.
4. Click Yes to confirm the delete request.

Timecode Modes

The following topics are discussed in this section:

- Clip Duration vs. Total Duration
  - Clip Absolute Timecode Mode
  - Clip Relative Timecode Mode
  - Virtual Timecode Mode
- Timecode Values for Network Links to Clips

AirSpeed provides VITC and LTC timecode functionality to both capture and playback. These timecode values are always preserved.

All timecode operations are identical in 30 Frame (525/60) and 25 Frame (625/50) rate television systems except that Drop-Frame mode is not available (or needed) in 25 Frame operation.

Clip Duration vs. Total Duration

All clips are described by two different duration values, Clip Duration and Total Duration. Total Duration is the duration of media in an event from first frame of recorded video to last frame of recorded video (perhaps including unrecorded black regions as described under Virtual timecode below). Clip Duration is the difference between the Mark OUT and the Mark IN. The Clip Duration is the length of time the event will play under automation control.

Clip Duration and Total Durations may be viewed by loading the desired event into a Capture/Monitor controller.

AirSpeed supports three types of user timecode indexes called “clip absolute,” “clip relative,” and “virtual tape.”

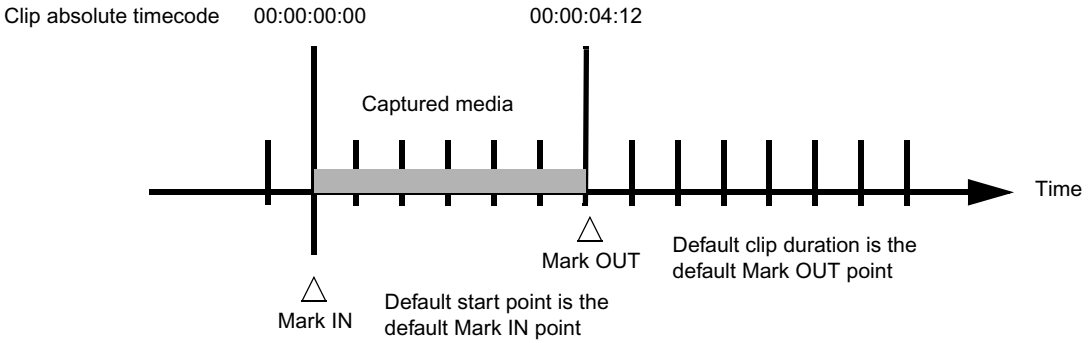
Clip Absolute Timecode Mode

Absolute mode may also be used when selected by the user on the Capture/Monitor panel (or via the Pilot application).

When using Clip Absolute Timecode, the timecode is by definition, zero at the beginning of any capturing. When capturing is stopped, the duration of the clip is equal to the duration of the event from the beginning to the end of the capturing, and is an absolute index into an clip.

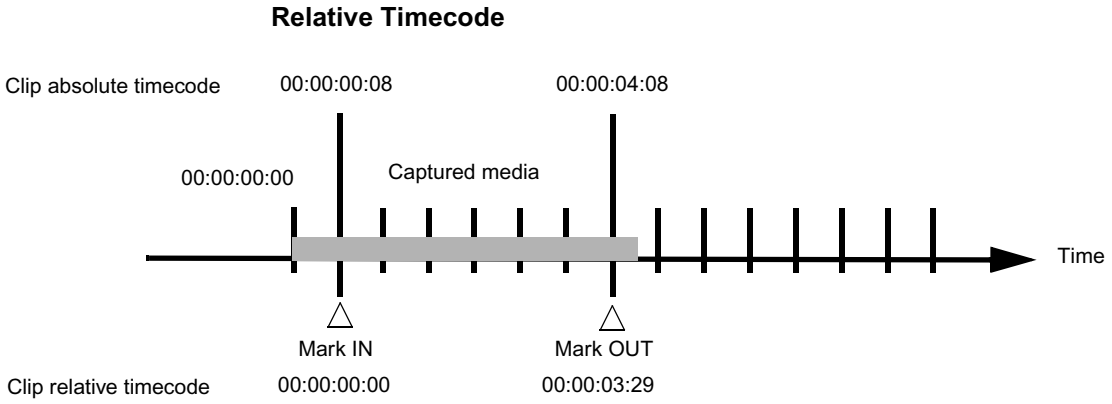
The following figure shows Clip Absolute timecode mode before any Mark IN or Mark OUT points have been set.

Absolute Timecode



Clip Relative Timecode Mode

Clip Relative timecode is exactly the same as Clip Absolute until you set Mark IN or Mark OUT to move the beginning or end of an event’s playback. After you have selected a Mark IN value, the absolute timecode can be any value at that In point, but its relative timecode is 0. Similarly, once you select a Mark OUT value, the system recalculates the Clip Duration based on the difference between the In and Out points.



In the example above, Mark IN has been set to :08 after the beginning of the capture and Mark OUT has been set to 4:08. Thus, the last playable frame of media is at 3:29 (from the Mark IN) and the clip duration is 4:00.

When in Absolute Timecode mode, the Mark IN position becomes the beginning of the playable media and the Mark OUT, the end. In order to operate outside of these points, the user must either clear the Mark or change to another timecode index such as Virtual.

On the Capture/Monitor user interface, when in Clip Absolute Mode, Mark IN and Mark OUT values are expressed in Clip Absolute values, while the current position indicator is shown in Relative timecode values.

Relative timecode is always reported to controlling automation systems via the VDCP protocol.

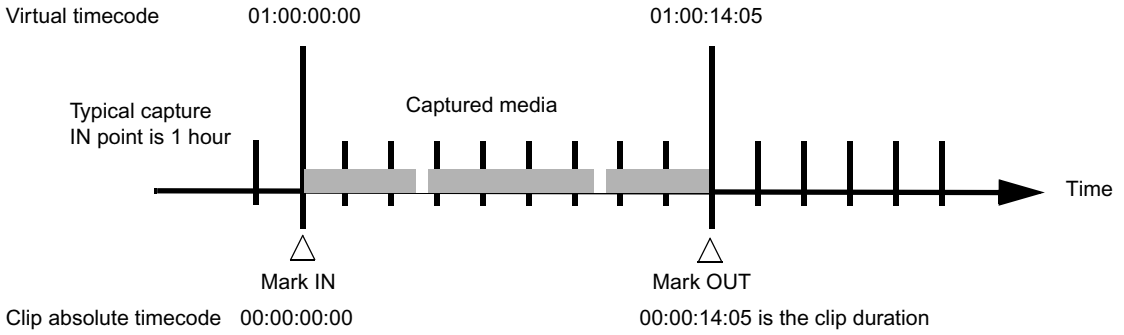
Virtual Timecode Mode

Virtual timecode mode provides a timecode space that is more useful for editing applications because it allows for preroll before the beginning of a clip and post roll after the end. Additionally, Virtual mode supports events constructed of any number of contiguous or noncontiguous captures.

Conceptually, Virtual timecode provides a 24 hour space (or ‘virtual tape’) in which to record media. This virtual tape initially appears to the user as ‘pre-striped’ or containing black/silence. The default Mark In value and the default beginning of Virtual Tape media are both 1 hour (01:00:00:00). The default

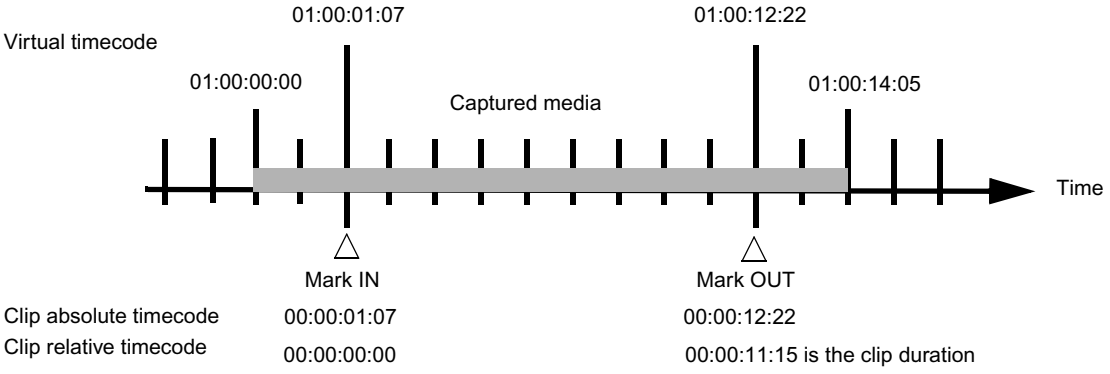
Mark OUT is the end of the capture. The following diagram shows an example where three captures are made, separated by a few seconds. These gaps will play back in black and take up no room on the array.

Virtual Timecode



Having made a virtual tape event, while still in virtual mode, you can make marks anywhere within or beyond the range of the recorded media. You view those mark values in either Virtual or Absolute mode as shown in the following diagram:

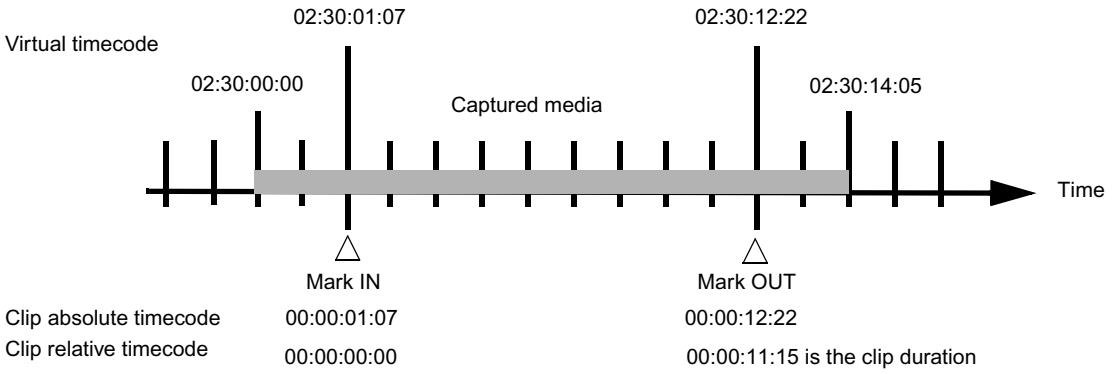
Virtual and Absolute Timecode



Finally, you can move the default Record In point in Virtual Timecode mode at any time by cueing to a different location and commencing a capture (or cueing to a point in time prior to existing media if any exists in the event).

Doing so maps an event onto a different region of the virtual tape space as shown in the following diagram. This example is identical to the previous one, only capture started at 2:30:00:00 instead of the default 1:00:00:00.

Virtual and Absolute Timecode Started Later



On the Capture/Monitor and Pilot user interfaces, you can select whether you are operating in Virtual or Absolute Timecode mode. Mark IN and Mark OUT values as well as the current position indicator are expressed in the timecode values appropriate to that selection, as shown in the preceding examples. Mark IN and Mark OUT have no effect on playing or stopping playout of media from these interfaces when in virtual mode. They only limit the extents of the playable media in Absolute mode.

Virtual Timecode is always reported to controlling devices when under the Sony protocol.

Timecode Values for Network Links to Clips

When you access a clip from a NewsCutter product, the system checks to determine where in Virtual Tape time that clip is located.

Since default NewsCutter sequences are created with the beginning at time 00:00:00:00, when AirSpeed receives such an event, it is placed at the default Virtual time of 01:00:00:00 (one hour) for convenience in subsequent editing operations.

When you create a NewsCutter clip with a starting time other than zero, the system assumes that the non-zero time value needs to be preserved for later editing or for establishing Mark IN and Mark OUT values. Thus, when AirSpeed receives such an event, it is placed in Virtual time at the same spot as it was on the NewsCutter time line.

The reverse is true also when clips are linked from AirSpeed to the NewsCutter. Any event with an IN point (in Virtual Tape time) of 01:00:00:00 creates NewsCutter footage with a start time of zero. Any other event IN point creates footage with start time equal to the IN point.

Chapter 7
AirSpeed Studio and Playout

This chapter describes the AirSpeed Studio functionality in the Avid Unity workgroup environment. It also describes the steps in configuring the Studio.

AirSpeed Studios are not supported in the Macintosh environment.

Studio Concept

The Studio consists of a group of AirSpeeds that can share a playout request. When media is sent to the Studio, all the AirSpeeds in the Studio are sent the media. Each AirSpeed in the Studio is capable of performing the playout if some of the Studio members are offline.

The Avid editing system sending a sequence to the Studio looks at the information listed in the TMClient.ini tab of the Transfer settings to identify the Studio and its members. The Studio information listed in the TMClient.ini tab is the aggregate of all the AirSpeed members in the Studio.

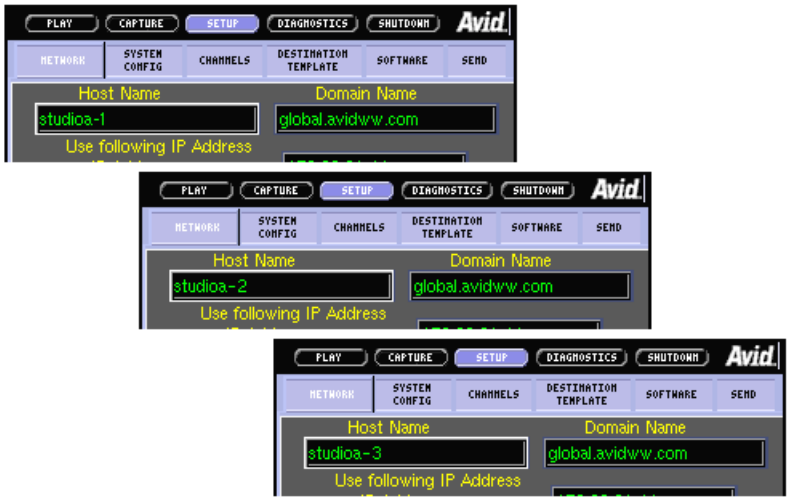
You can create multiple Studios in a workgroup environment. Each Studio is created using the same process.

Creating the Studio on the AirSpeed

The Studio is created by naming up to five AirSpeeds with a common Host Name and a unique number after the name. The name and the number are separated with a dash (–). Do not add any spaces between the name, dash, and number. The Studio consist of AirSpeeds using the naming format of *studioname*–1 through *studioname*–5, which allows the Avid editing system to easily locate the members of the Studio.

Name the AirSpeed in the Setup > Network > Host Name text box of the AirSpeed UI. For more information on the network settings, see "Network Tab" on page 77. The following figure is an example of how you would name three AirSpeed members to create a Studio.

Three AirSpeed Members in a Studio



The first AirSpeed name in the Studio must include the "–1" in the name. The second AirSpeed you add to the Studio must include "–2" in the name, and so forth. You cannot skip a number in the Studio name. For example you must use *studioname*–1, *studioname*–2, *studioname*–3 and cannot use *studioname*–1, *studioname*–3, and *studioname*–4.

Adding the Studio to Your WorkGroup

Studio support (including status) needs the Avid AirSpeed I/O Peripheral applications and the Editor Ingest and Playback Support installed on the Avid editing system. Uninstalling either will remove Studio functionality from the Avid editing system.

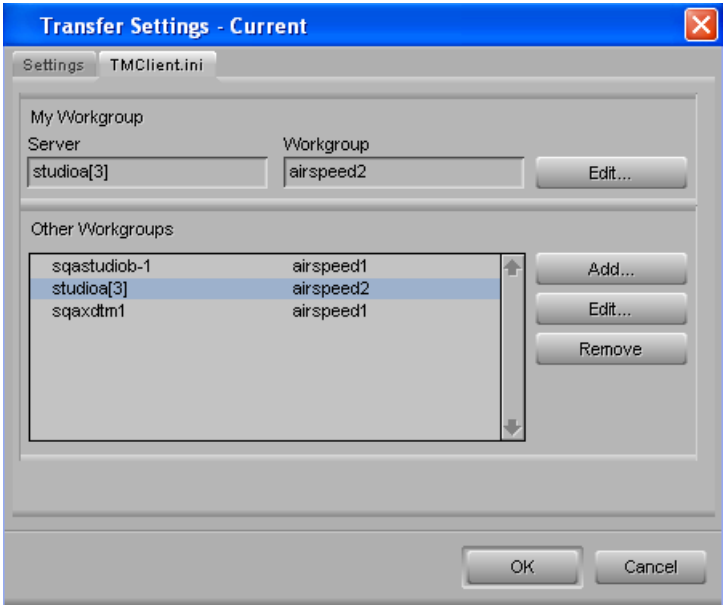
The Studio is configured in the “TMClient.ini” tab of the Avid editing application’s Transfer setting dialog box. A Studio is identified using the following naming convention in the TMClient.ini tab:

studioname[*N*]

Where *studioname* is the name entered as the Host Name on each AirSpeed in the Studio, and *N* represents the number of members in the Studio. This naming convention distinguishes the AirSpeed Studio and all other TransferManager Servers (including single AirSpeeds).

Invalid or inactive playback server name entries in TMClient.ini can delay the Avid editor startup.

Adding the Studio to the Transfer Server List



To add a Studio to an Avid editing system:

1. In the Avid editing application, click the Settings tab in the Project window.
2. Double-click Transfer in the Settings scroll list.

   The Transfer Settings window opens.
3. Click the TMClient.ini tab.
4. Click Add.

   If changing the Studio name, click Edit.
5. Type the Studio name and the number of members in brackets "[ ]" in the Server text box.

   The number in brackets "[*N*]" identifies how many AirSpeed members are in the Studio. Using the figures in this section as an example, type *studioa*[3] in the Server text box. The AirSpeed members are *studioa*–1, *studioa*–2, and *studioa*–3.

If adding an individual AirSpeed to the Send to Playback list, just type the AirSpeed Host Name in the Server text box as it appears in the Setup > Network tab of the AirSpeed UI.

6. Type the name of your workgroup in the Workgroup text box. This can be any name you give your workgroup. This entry is case sensitive.
7. Click OK.

Using the Studio

When the Avid editing application starts and connects to the Avid MediaNetwork environment, the playback devices are made available to the Avid editing system. These devices are displayed in the Transfer > Send To Playback menu. If your Studio was not available when you started the Avid editing application, you select Select Transfer > Reconnect To Server.

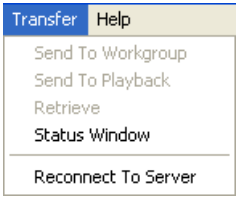
Connect to Playout Server or Studio

The Studio is defined in the TMClient.ini tab on the Avid editing system. The Avid editing system determines if the playback device is a Studio by the naming convention, see "Adding the Studio to Your WorkGroup" on page 119.

This detection happens when the Avid editing application is started. If you are already running the Avid editing application and want to make sure the playback servers are available, select “Reconnect To Server” in the application.

To connect or reconnect to transfer server:

- Select Transfer > Reconnect to Server.

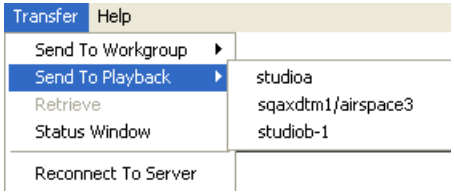


Send to Playout Server or Studio

The Studio name appears in the Avid editing application’s Send To Playback list when you are connected to the studio. When a sequence is ready for playout, highlight the sequence and send it to the Studio in the playback list.

To send a sequence to a Studio, do one of the following:

- Right-click on the selected sequence and select Send to Playback > *studioname*.
- Highlighted the sequence in your bin, select Transfer > Send to Playback > *studioname*.



The Send To Playback list is not automatically refreshed with network changes. If the Studio has become unavailable, the Studio name remains in the Avid editing application’s Send To Playback list. To check if the Studio is still available, select Transfer > Reconnect To Server. If the Studio name is

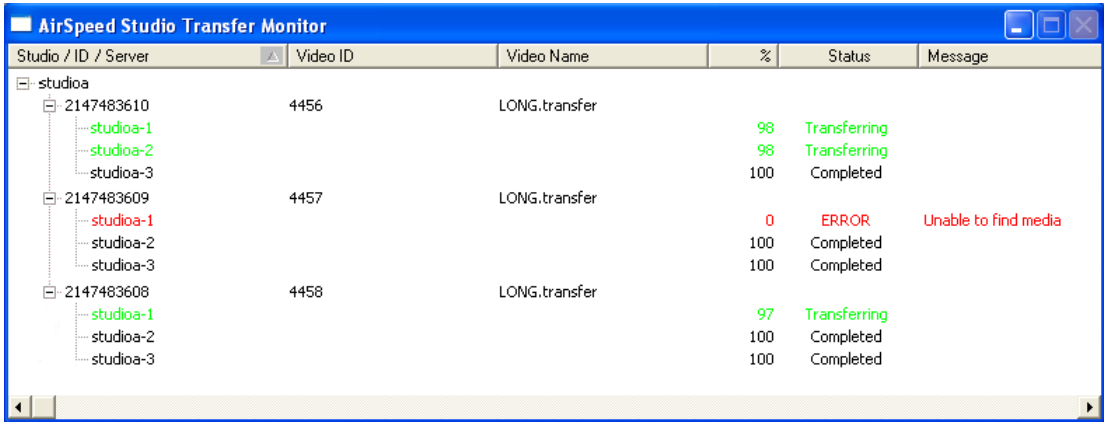
removed from the Send To Playback list, all of the Studio members are no longer unavailable. If you send a sequence to a Studio that is unavailable, the result is a failed transfer.

As long as one member of the Studio is available, the Studio name appears on the Send To Playback list and the transfer is successful. A Studio is only unavailable, when all of its members are unavailable.

Monitoring Studio Transfers

After you have sent a sequence to playback within the Avid editing application, you can monitor the transfer in the Avid editing application. The AirSpeed Studio Transfer Monitor dialog box automatically appears on the Avid editing system the first time you send a sequence to a Studio. The dialog box first appears minimized in the taskbar. When you click on the minimized dialog box in the taskbar, the dialog box opens and stays on top of the Avid editing application. This dialog box can be minimized again, but cannot be closed. The following figure shows the AirSpeed Studio Transfer Monitor dialog box as it appears on the Avid editing system.

AirSpeed Studio Transfer Monitor Dialog Box



The dialog box provides a tree listing of the AirSpeed members in the Studio with the transfer results. The AirSpeed Studio Transfer Monitor dialog box is updated in the Avid editing application as the media transfers. A Studio monitor cannot be used to retry or pause transfers.

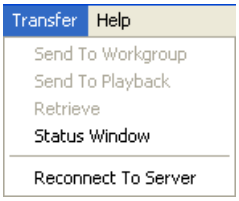
Transferred items are listed in the dialog box until you quit the Avid editing application or clear the list using the Transfer Status window options. For information on the Transfer Status window, see “Transfer Status Window” on page 123.

Transfer Status Window

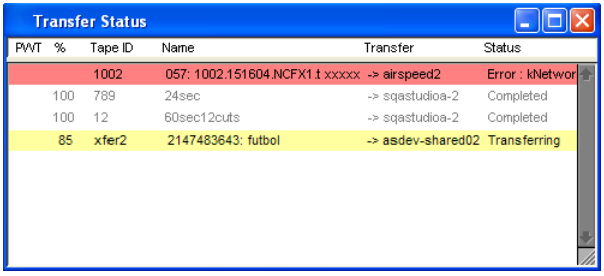
The Transfer Status window displays all TransferManager activity.

To open the Transfer Status window:

- Select Transfer > Status Window.



Transfer Status Window



Transfers display as one entry in Transfer Status window. Although multiple sequences might be included in the transfer, the window displays status for the entire transfer. If one or more members of the Studio are not available, the transfer will immediately display an Error with corresponding text. An Error is displayed even if other Studio members are successfully transferring.

If you have administrative privileges or you initiated the transfer, you can cancel, retry, pause, or resume transfers. The following table explains the Status conditions. Right-click the status line of a particular transfer to select the user options.

TransferManager Status Descriptions

Status	Description	User Options
Transferring	At least one transfer is running and *none* have failed.	Pause or cancel the transfer.
Paused	All transfers are paused.	Resume or cancel the transfer.
Error (plus information indicating the error)	At least one transfer has failed. As soon as one transfer fails, regardless of the state of any of the other transfers, the transfer state is failed.	Retry or clear the transfer.
Pending	All transfers are pending.	Cancel the transfer.
Completed	All transfers have completed with no failures.	Clear the transfer.
Canceled	All transfers have been canceled.	Clear the transfer.

Chapter 8

AirSpeed Operations with Other Avid News Applications

This chapter provides operating instructions for the AirSpeed when configured to work with the Avid NewsCutter products. The following topics are discussed:

- Transferring Sequences from an Avid NewsCutter products
- Using Pilot to load clips into a NewsCutter products's Capture Tool
- Using FlightPlan
- Remote Operations

Transferring Sequences from an Avid NewsCutter products

This section provides instructions for transferring completed sequences from an Avid NewsCutter products to an Avid AirSpeed system.

These are the media files containing audio and video information. When sequences are transferred to the AirSpeed, they are automatically "flattened," that is, all transitions are rendered and all non-linear edits become one continuous piece of media.

Transfer Setup Checklist

❑ Ensure that there is an appropriate network connection between the desired NewsCutter products / AirSpeed combination between which files are to be transferred as described in Chapter 3.

❑ Ensure that communication is configured and tested on both the AirSpeed and NewsCutter products sides as described in “Network Tab” on page 77.

Transferring Sequences from NewsCutter Products to AirSpeed

To transfer sequences from NewsCutter products to the AirSpeed:

1. After completing the sequence, Right-Click the sequence in the Timeline.
2. Select Post to Playback.

   A dialog box appears asking you the Name and Tape ID of the sequence you want to transfer.
3. If it is not already filled in, enter the Name and Tape ID of your sequence.
4. Click OK to begin the transfer.

   A status window appears indicating the time remaining to transfer the story.

   Once the status bar disappears, a dialog box appears confirming that the story has successfully transferred to the server.

Using Pilot to load clips into a NewsCutter products’s Capture Tool

This section provides instructions for loading a clip into the Avid NewsCutter products’s Capture tool.

Before you send a sequence to an AirSpeed, follow the checklists below.

Capture Tool Setup Checklist

AirSpeed Setup

❑ Ensure that the AirSpeed is properly installed, with all audio, video ports, and networking connected according to your specific requirements. For details, see Chapter 2.

❑ Ensure that the AirSpeed is properly configured to communicate with Avid Unity workgroup environment. For details, see Chapter 5.

NewsCutter Product Setup

❑ Ensure that the NewsCutter product is properly installed, with all audio and video ports and networking connected according to your specific requirements. Refer to Avid for details regarding proper NewsCutter products installation.

❑ Configure the NewsCutter product to communicate with an AirSpeed. See the NewsCutter products documentation.

❑ Verify communications between the NewsCutter product and AirSpeed. For details, see "Network Test" on page 95.

❑ Verify that Pilot is properly installed on your system. Refer to the installation instructions provided with the Pilot software.

Configuring AirSpeed to Work with NewsCutter products using Pilot

The AirSpeed can be used as a video source for the NewsCutter products. Note the following points:

- The AirSpeed functions like a standard VTR to the NewsCutter products.
- Only one NewsCutter products can be accessing any one channel of the AirSpeed at a time.
- The NewsCutter products captures the video via the SDI video input on the NewsCutter products.
- No media travels over the network. The network connection is used only to allow Pilot to communicate with the AirSpeed.

Loading AirSpeed clips into the Capture Tool

Use the following steps to load clips that were recorded on to an AirSpeed into the NewsCutter products's Capture tool:

1. Ensure the NewsCutter products application is running.
2. Start the Pilot application on the NewsCutter products or other Windows system.
3. Select the Server Name from the server menu from which you want to capture from.

4. Select the Server Port to which you are physically connected (Audio, Video and Control) and from which you want to capture.
5. Select the Video ID of the clip you want to load.

   Now you should be able to return to the NewsCutter products application and control the AirSpeed using the NewsCutter products's Capture tool.

Using FlightPlan

This section provides instructions for copying or moving clips from an Avid AirSpeed system to a NewsCutter products or the Avid Unity MediaNetwork.

Transferring Clips From AirSpeed to NewsCutter products

To transfer clips from any connected AirSpeed to a NewsCutter product:

1. From a NewsCutter product, start the FlightPlan application.
2. In NewsCutter, configure the transfer settings:
   a. Click the Settings tab in the Project window and double-click Transfer in the Settings scroll list.
   b. Click the TMClient.ini tab.
   c. In the Server text box, type the AirSpeed Server name.
   d. In the Workgroup text box, type the name of the server's workgroup. If the server is not already part of the workgroup, type a name for the workgroup. This entry is case sensitive.
   e. Click OK.
3. From the FlightPlan Server list, select the AirSpeed Server on which the event or group of events you want to copy is located. If the AirSpeed Server you want does not appear in the list, refer to the FlightPlan documentation for adding servers to this list.

   The list of available clips on the connected system will appear in the window as soon as the connection is successfully completed.
4. Select the event or group of events to be moved or copied by clicking, Shift+clicking, or Ctrl+clicking the events listed in the window. To select all the events in the list, select Edit > Select All.
5. Drag the selection to a NewsCutter products Bin.

If the NewsCutter products is standalone, the clip is copied directly to that NewsCutter products's drives. If the NewsCutter products is connected to the Avid Unity MediaNetwork, the clip is copied directly to the Avid Unity MediaNetwork.

Remote Operations

Prior to operating the AirSpeed by remote control, ensure that the following hardware connections are made, and that the following system configuration functions are set.

- Virtual Network Computing
- General Remote Control Setup
- Remote Control from an Automation System
- Remote Control from a System Using an Edit Controller
- Remote Control from Any Device Providing Contact Closure

Virtual Network Computing

There is an application called Virtual Network Computing (VNC) which provides access to the AirSpeed UI from a remote computer. This cross-platform software allows you to perform all keyboard and mouse functions on the AirSpeed using a network connection. Multiple VNC sessions can be run simultaneously on a single computer. Each VNC session displays a single AirSpeed UI.

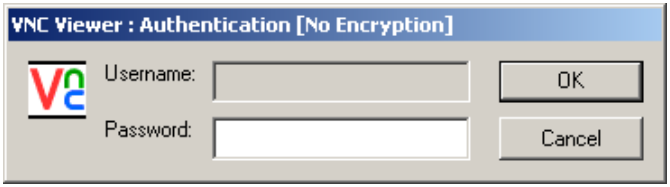
Download the VNC Viewer client application and documentation from www.realvnc.com.

To access AirSpeed via VNC Viewer over the network:

1. Download and install the VNC Viewer software.
2. Start VNC Viewer.

3. In the VNC Viewer: Connection Details dialog box, type the AirSpeed name or the IP address of the AirSpeed, and click OK.

4. At the VNC Viewer: Authentication dialog box type **`mars`** in the Password text box and click OK.



The default password for VNC is mars, change the password in the AirSpeed UI > Setup > System Config tab, see "Setting Passwords to Access AirSpeed" on page 82.

The AirSpeed UI displays in a window on your local system.

Whatever process that is currently being performed on the AirSpeed is displayed in the window. You can click on any button, tab, and enter data from your remote system to control and configure the AirSpeed.

The default VNC settings causes some buttons in the AirSpeed UI to appear dimmed and the text not be visible. This is corrected by changing the color setting in the VNC options.

To change the color setting:

1. Right-click on the VNC window the title bar.
2. Select Options.
3. Click the Colour/Encoding tab.
4. Select Colour level to Medium or Full.
5. Click the Defaults tab.
6. Click Save As Defaults and click OK to close the window.

All buttons and text in the AirSpeed UI are now visible each time you start the VNC application.

General Remote Control Setup

❑ Ensure that the video format and audio source is properly selected in the AirSpeed. For instructions, see “System Config Tab” on page 78.

❑ Ensure that each desired function (Record/Playlist or Capture/Monitor) is properly configured for your application. See “System Config Tab” on page 78.

❑ If required for your specific configuration, ensure that each playout channel’s component analog outputs are set to the desired format. For details, see “Channels Tab” on page 84.

❑ Ensure that each playout channel’s VITC output line and record channel’s VITC input line is properly set. See “Channels Tab” on page 84.

❑ Ensure that each playout channel’s output timing is properly set. For details, see “Channels Tab” on page 84.

❑ If required for your specific configuration, ensure that the network parameters are set properly in the AirSpeed UI. For details, see "Network Tab" on page 77.

Remote Control from an Automation System

The rear panel includes two remote connectors.

- The REMOTE 1 port is normally used for remote control capability for the primary channel.
- The REMOTE 2 port is normally used for remote control capability for the secondary channel.

Automation systems can in fact access any VDCP configured input or output channel from any Remote connector also so configured. We recommend for ease of troubleshooting that users physically connect to the appropriate Remote port as described above.

❑ Ensure that each configured panel (automation protocols are available for Capture and Playlist controller panels) has selected an appropriate automation protocol for your application (VDCP or Sony). See "System Config Tab" on page 78.

❑ For each rear panel in your AirSpeed configuration, ensure that the automation system's RS-422 port(s) are properly connected to the desired remote port(s) on the rear panel.

❑ Repeat the above item for *each channel* that you want to control from an automation system. For RS-422 wiring details, see "Remote 1 and Remote 2" on page 140.

Remote Control from a System Using an Edit Controller

The rear panel includes two remote connectors.

The REMOTE 1 port and REMOTE 2 port both provide control capability for both primary and secondary channels. Use either port.

❑ Ensure that each configured panel (Sony is currently only available for the Capture/Monitor panel) has selected the Sony protocol item in that panel's pop-up selector. See "System Config Tab" on page 78.

❑ For each rear panel in your AirSpeed configuration, ensure that the editing system's RS-422 port(s) are properly connected to the desired remote port(s) on the rear panel.

❑ Repeat the above item for *each channel* that you want to control from an automation system. For RS-422 wiring details, see "Remote 1 and Remote 2" on page 140.

Remote Control from Any Device Providing Contact Closure

The rear panel includes one GPIO (General Purpose Input/Output) connector. This connector provides 12 control functions (8 inputs, 4 outputs).

The functions provided through the GPIO connector are not available for the initial release of AirSpeed.

❑ For each rear panel in your AirSpeed configuration, ensure that the controlling device's GPIO port is connected to the GPIO connector on the rear panel.

❑ For each rear panel, ensure that the proper GPIO "pin" connections are made. For GPIO wiring details, see "GPIO" on page 142.

❑ For GPIO control, ensure that all GPIO triggers are programmed properly from the external device.

GPIO functions operate differently in every environment and may have unexpected latencies. GPIO operation can not be guaranteed and must be tested for your specific application.

Appendix A

Specifications

This appendix provides a detailed listing of all technical system specifications and connector pinouts. The following topics are discussed:

- Physical Specifications
- Audio Specifications
- Video Specifications
- Control and Synchronization Specifications
- Data Specifications
- Rear Panel Specifications
- Connector Pinouts

All specifications are subject to change without notice.

Physical Specifications

Physical Specifications

Parameter	Specification
Dimensions	inches: 19.00 (w) x 5.2 (h) x 24.9 (d) cm: 48.3 (w) x 13.2 (h) x 63.3 (d)
Rack Units	3
Weight	pounds: 37 kilograms: 1.67

Power and Environment Requirements

Parameter	Specification
Power	100 to 240 Vac, 50/60 Hz Auto Ranging, 470 Watts
Environmental	10°C to 35°C, 90% RH non-condensing

Audio Specifications

Audio Specifications

Parameter	Specification
Channels	8 Channels Per Video Channel AES/EBU
Sampling	48 KHz, 16 or 24 bit precision, Balanced Differential
AC-3	Fully compatible with professional and consumer encoding
Audio Monitoring	8 Channels Analog of Out

Analog Audio Output Specifications

Parameter	Specification
Frequency Response	**20 – 20 kHz. < 0.5 dB deviation**
Dynamic Range	**82 dB unweighted**
THD plus Noise	**78 dB unweighted at 0 dBFS**
Inter channel crosstalk	**< 60 dB at 1 kHz**
Inter channel gain mismatch	**< 0.5 dB**
Output Impedance	**300 ohm**
Minimum Headphone Impedance	**32 ohm**
Maximum Headphone Output Level	**18 dBu**

Video Specifications

Video Specifications

Parameter	Specification
Video Channels	1 Receive or 2 Play Channels 525/625 selectable (SMPTE - 259M)
1 SDI Input, 2 SDI outputs	ITU-R BT.-601 10 bit Serial Digital Component Video
Video Input	1 SDI (serial digital interface — SMPTE 259M)
Video Outputs	2 SDI (serial digital interface — SMPTE 259M)
Video Monitoring	NTSC/PAL Composite Monitor Output, Clean Feed and Burned in TC
	YPrPb/GBR Component Monitor Out (selectable)
Video Compression	25 MB/s (4:1:1) DV and 50 MB/s (4:2:2) DV or IMX 50

Control and Synchronization Specifications

Control and Synchronization Specifications

Parameter	Specification
External Control	RS-422 control for each play using VDCP and Avid external Application Program Interface (API)
	8 GPI, 4 GPO (TTL Interface – Active low going signal see, "GPIO Connector Pin Assignments, Female" on page 142)
Manual Control	Graphical user interface provides basic record, play, trimming, locators, and configuration capabilities
Timecode	Linear Timecode SMPTE 12M Balanced I/O
	Vertical Interval Timecode, SMPTE 266 Compatible with Input and Output Line Selections
Reference	Analog black burst reference, looping input
Output timing	5 lines advance to 3 lines delay in 1/8th pixel steps
Internal Time	Derived from VITC on composite reference input
Closed Caption	All Closed Caption lines are preserved

Data Specifications

Data Specifications

Parameter	Specification
Keyboard/Mouse Port	6-Pin mini DIN connector, for PS/2 compatible keyboard and mouse.
SMPTE Alarm	BNC connector, SMPTE 269M Contact Closure to ground (shell)
Ethernet Port	RJ-45 connector, 10BASE-T, 100BASE-T, or 1000BASE-T, auto sensing (only 1000BASE-T is qualified to use on AirSpeed for Avid Unity MediaNetwork inter-connections)

Rear Panel Specifications

Rear Panel Specifications

Parameter	Specification
Serial Remote 1	9-Pin female D connector, RS-422
Serial Remote 2	9-Pin female D connector, RS-422
GPIO Connector (not available for the initial release)	25-Pin female D connector male
Analog I/O Connector	25-Pin female D connector female
LTC Timecode	In: 1 XLR female connector, Out: 2 XLR male connectors
AES/EBU Digital Audio	In: 4 BNC connectors, Out: 4 BNC connectors
Component Monitor Out	3 BNC connectors
Composite Monitor Out	1 BNC connector
SDI In	1 BNC connector
SDI Out	2 BNC connectors
Reference In	1 BNC connector
Reference Out	1 BNC connector
SMPTE Alarm	1 BNC connector

Connector Pinouts

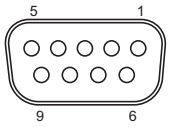
Thefollowing connectors are listed in this section:

- Remote 1 and Remote 2
- Ethernet Connector Specifications
- GPIO (not available for the initial release)
- Analog Audio Monitor
- LTC Timecode
- Keyboard/Mouse

In order to ensure emission compliance, all cables attached to connectors on the AirSpeed chassis must be fully shielded and properly grounded to the connector shell where possible.

Remote 1 and Remote 2

The following table lists RS-422 specifications for the Remote 1 and Remote 2 female connectors on the rear panel.

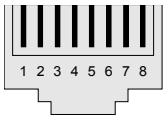


RS-422 Remote 1 and Remote 2, Female

Pin #	Remote 1	Remote 2
1	Ground	Ground
2	Transmit data 1 (–)	Transmit data 2 (–)
3	Receive data 1 (+)	Receive data 2(+)
4	Ground	Ground
5	Ground	Ground
6	Ground	Ground
7	Transmit data 1 (+)	Transmit data 2 (+)
8	Receive data 1 (–)	Receive data 2 (–)
9	Ground	Ground

Ethernet Connector Specifications

The following table lists Ethernet connector (RJ-45) specifications on the chassis.



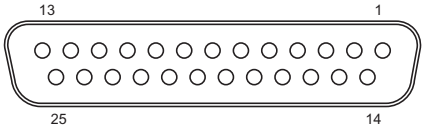
Ethernet Connector Specifications, Female

Pin #	Wire Color	Signal	Function
1	White-Orange	TD A+	Positive differential transmit
2	Orange	TD A–	Negative differential transmit
3	White-Green	RD B+	Positive differential receive
4	Blue	TD C+	Positive differential transmit
5	White-Blue	TD C–	Negative differential transmit
6	Green	RD B–	Negative differential receive
7	White-Brown	RD D+	Positive differential receive
8	Brown	RD D–	Negative differential receive

GPIO

The following table lists pin assignments for the 25-pin GPIO male connector on the rear panel. The GPIO connector is not functional for the initial release of AirSpeed.

The external connector and cable are customer supplied. A shielded cable must be used on this connector to maintain RFI compliance. The shield of the cable should be connected to the connector's shield or shell.



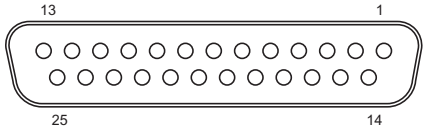
GPIO Connector Pin Assignments, Female

Pin #	Signal	Pin #	Signal
1	N/C	14	N/C
2	GP In 7	15	N/C
3	GP In 6	16	N/C
4	GP In 5	17	N/C
5	GP In 4	18	GP Out 3
6	GP Out 2	19	GP Out 1
7	GP Out 0	20	Ground
8	Ground	21	N/C
9	N/C	22	N/C
10	N/C	23	GP In 3
11	GP In 2	24	GP In 1
12	GP In 0	25	Ground
13	Ground		

Analog Audio Monitor

The following table lists pin assignments for the 25-pin Analog Audio I/O female connector on the rear panel. Avid provides the cable with the AirSpeed.

In the following table, P indicates the positive signal, N indicates the negative signal and AA indicates analog audio.



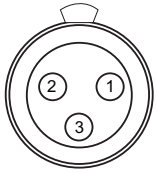
Analog Audio Connector Pin Assignments, Female

Pin #	Signal	Function	Pin #	Signal	Function
1	AA OUT P8		14	AA OUT N8	
2	Ground		15	AA OUT P7	
3	AA OUT N7		16	Ground	
4	AA OUT P6		17	AA OUT N6	
5	Ground		18	AA OUT P5	
6	AA OUT N5		19	Ground	
7	AA OUT P4		20	AA OUT N4	
8	Ground		21	AA OUT P3	
9	AA OUT N3		22	Ground	
10	AA OUT P2		23	AA OUT N2	
11	Ground		24	AA OUT P1	
12	AA OUT N1		25	Ground	
13	N/C				

LTC Timecode

The LTC In is an AC coupled differential input feeding a comparator which requires a minimum 100mV differential between the LTC+ and LTC-. Peak-Peak input levels can be anywhere between 300 mV and 5.3V. The following table lists LTC specifications on the rear panel.

LTC In
female connector



LTC Out
male connector

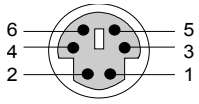
LTC Timecode Input Connector Specifications, XLR Female

Pin #	Signal	Function
1	GND	Ground
2	+ Line	Positive differential signal
3	– Line	Negative differential signal

Shielded cable must be used on each connection to maintain RFI compliance. Connect the shield of the cable to the shield of the connector.

Keyboard/Mouse

The following table lists keyboard and mouse connector specifications.



Mouse Connector Specifications (Mini DIN)

Pin #	Signal	Function
1	Data	Keyboard data
2	Data	Mouse data
3	GND	Ground
4	+5 Volts	Fused VCC
5	Clock	Keyboard clock
6	Clock	Mouse clock

Appendix B

Regulatory and Safety Notices

Warnings and Cautions

Never install equipment if it appears damaged.

Disconnect the power cord before servicing unit.

Only perform the services explicitly described in this document. For services or procedures not outlined in this document, speak with authorized Avid service personnel.

“CLASS 1 LED PRODUCT”

Follow all warnings and cautions in the procedures.

Operate the device within its marked electrical ratings and product usage instructions.

Risk of explosion if battery is replaced by an incorrect type. Dispose of used batteries according to the manufacturer's instructions.

FCC Notice

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Canadian ICES-003

This Class A digital apparatus meets all requirements of the Canadian Interference Causing Equipment Regulations.

Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

European Union Notice

CE

Declaration of Conformity (According to ISO/IEC Guide 22 and EN 45014)

Application of Council Directives:	73/23/EEC, 89/336/EEC.
Standards to which Conformity is Declared:	EN60950:1999 Third Edition CISPR 22:1997 / EN55022:1994 + A1:1995 + A2:1997 Class A EN55024:1998/EN61000 — 3-2, 4-2, 4-3, 4-4, 4-5, 4-6, 4-11
Manufacturer's Name:	Avid Technology, Inc. 1925 Andover Street Tewksbury, MA 01876, USA

European Contact:	Nearest Avid Sales and Service Office or Avid Technology International B.V. Sandyford Business Center Unit 3, Dublin 18, Ireland
Type of Equipment:	Information Technology Equipment
Product Name:	Products for the Windows NT, Windows 2000, or Windows XP Operating System: Avid Adrenaline DNA, Avid DS Nitris DNA, Avid Equinox Break-Out-Box, Avid|DS, Avid Xpress, Avid Xpress DV, Film Composer, Media Composer, MediaDock, MediaDock 2+, MediaDrive, MediaRAID, MEDIArray, MEDIArray Drive, MEDIArray II, MEDIArray II Drive, Meridien I/O box, NewsCutter, NewsCutter DV, NewsCutter XP, Pro Tools AVoption|V10, Symphony Products for the Mac OS X Operating System: Avid Adrenaline DNA, Avid Xpress, Avid Xpress DV, Film Composer, Media Composer, MediaDock, MediaDock 2+, MediaDrive, MediaRAID, MEDIArray, MEDIArray Drive, MEDIArray II, MEDIArray II Drive, Meridien I/O box, Pro Tools AVoption|V10, Symphony Products for the UNIX Operating System: AirPlay, AirSPACE, AirSpeed, VideoSPACE Products for MediaNetwork and Workgroups: Avid ProEncode, Avid Unity MediaManager, Avid Unity MediaNetwork (includes File Manager), Avid Unity TransferManager, LANserver, LANserver EX, MEDIArray, MEDIArray Drive, MEDIArray II, MEDIArray II Drive, MEDIArray ZX, MEDIArray ZX Drive, Nearchive, PortServer, Vixel switches (8100, 7100, 7200, 9100, 9200), Xdeck
Base Model Numbers:	None
Product Options:	All
Year of Manufacture:	2004

(1) Products for the Windows NT, Windows 2000, or Windows XP Operating System: products were tested in a typical Avid Adrenaline DNA, Avid DS Nitris DNA, Avid Equinox Break-Out-Box, Avid|DS, Avid Xpress, Avid Xpress DV, Film Composer, Media Composer, MediaDock, MediaDock 2+, MediaDrive,

MediaRAID, MEDIArray, MEDIArray Drive, MEDIArray II, MEDIArray II Drive, Meridien I/O box, NewsCutter, NewsCutter DV, NewsCutter XP, Pro Tools AVoption|V10, or Symphony configuration.

(2) Products for the Mac OS X Operating System: products were tested in a typical Avid Adrenaline DNA, Avid Xpress, Avid Xpress DV, Film Composer, Media Composer, MediaDock, MediaDock 2+, MediaDrive, MediaRAID, MEDIArray, MEDIArray Drive, MEDIArray II, MEDIArray II Drive, Meridien I/O box, Pro Tools AVoption|V10, or Symphony configuration.

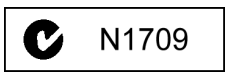
(3) Products for the UNIX Operating System: products were tested in an AirPlay, AirSpeed, or VideoSPACE configuration.

(4) Products for MediaNetwork and Workgroups: products were tested in a typical Avid ProEncode, Avid Unity MediaManager, Avid Unity MediaNetwork (includes File Manager), Avid Unity TransferManager, LANserver, LANserver EX, MEDIArray, MEDIArray Drive, MEDIArray II, MEDIArray II Drive, MEDIArray ZX, MEDIArray ZX Drive, Nearchive, PortServer, or Xdeck configuration.

I, the undersigned, hereby declare that the equipment specified above conforms to the above Directives and Standards.

George R. Smith, Director of Hardware Engineering

Australia and New Zealand EMC Regulations



John Kells, Australian Operations Manager
Avid Technology (Australia)
Unit B
5 Skyline Place
French Forest NSW 2086
Australia
Phone: 61-2-8977-4800

Taiwan EMC Regulations

Taiwan EMC Regulations BSMI Class A EMC Warning

警告使用者:

這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

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